

Ground Support Personnel Training and Certification Plan

International Space Station Program

March 2000

Revision A

**National Aeronautics and Space Administration
International Space Station Program
Marshall Space Flight Center
Huntsville, Alabama
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INTERNATIONAL SPACE STATION PROGRAM
GROUND SUPPORT PERSONNEL TRAINING AND CERTIFICATION PLAN

CONCURRENCE

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ABSTRACT

This document presents the training and certification requirements for Payload Ground Support Personnel (GSP) as prepared and developed by the Marshall Space Flight Center (MSFC) Training Strategy Team (TST) and the Payload Developers (PD). This document defines the training course work and other activities required for GSP who will be supporting payload operations.

KEY WORDS

Certification	Payload Developer
Curriculum	Requirements
Ground Support Personnel	Supervisor
Mentor	Training

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SECTION 1, INTRODUCTION

1.1 PURPOSE

The purpose of this document is to define the Payload Training and Certification Plan for Payload Ground Support Personnel (GSP) for the International Space Station (ISS). Payload GSP includes the cadres of the Payload Operations Integration Center (POIC), the Payload Developer (PD) cadres for National Aeronautics and Space Administration (NASA) payloads, and all payloads in the NASA element. The training plan and certification requirements for Payload Crew Instructors, Operations Preparations personnel and Payload GSP Training Team personnel are included. Since PD cadres (identified in this document as Payload Developer Team personnel) interface with the POIC from participating Telescience Support Centers (TSC) or remote sites, training responsibilities for facility personnel at these remote sites are described. This document addresses concepts, processes, and tasks required for training Payload GSP. Included are course curricula, course descriptions, training and certification requirements and training flows for Payload GSP positions. All training and certification will follow the standards and procedures described herein.

1.2 SCOPE

This document describes the training activities provided by POIC at Marshall Space Flight Center (MSFC) for Payload GSP and addresses how Payload GSP will be trained. The overall training and certification concept, definitions, and requirements as well as training curricula and training flows, will be described in this document. The specific roles and responsibilities of individuals and groups involved in this plan will be described in detail. This description will list/discuss training methods, facilities used for training, and the documentation related to training. The processes and activities performed to plan, develop, implement, administer, and track the training and certification requirements for ISS will also be discussed.

1.3 CHANGE AUTHORITY

This document is written under the authority of NASA Payload Operations Integration (POI) and, once baselined, will be under the configuration control of the NASA Payload Operations Control Board (NPOCB).

1.4 GOAL OF PAYLOAD GSP TRAINING

The goal of the ISS Payload GSP training is to produce personnel knowledgeable and skilled in all aspects of payload operations in support of the ISS program. These payload

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operations include (but are not limited to) knowledge of ISS science; knowledge and skills in interface procedures with the on-board crew and/or other NASA centers; knowledge of payload regulations; ISS flight rules; and knowledge and skills with on-board payload systems, video, data, and planning activities.

SECTION 2, DOCUMENTS

2.1 APPLICABLE DOCUMENTS

The following documents may include specifications, standards, guidelines, procedures, handbooks, and other special publications. These documents, of the exact issue shown, form a part of these requirements to the extent specified herein. Unless the exact issue and date are identified, the “Current Issue” cited in the contract Applicable Documents List applies. Inclusion of applicable documents herein does not in any way supersede the contractual order of precedence.

SSP 41184-01	Multilateral Training Management Plan, Volume 1
SSP 50200-07	Station Program Implementation Plan, Volume 7: Training
SSP 58303	Team Definition Document International Space Station Operations
SSP 58309	NASA Payload Training Implementation Plan

2.2 REFERENCE DOCUMENTS

D683-43039-1	Simulations Guidelines Document for International Space Station
JSC 36307	NASA Training Implementation Plan
SSP58312 -	Payload Operations Handbook
SSP 41184-02	Multilateral Training Management Plan, Volume 2
SSP 52000-PDS	Payload Data Set Blank Book
[TBD 2.1]	Joint Operations Interface Procedures - Payload Operations Integration Center to Space Station Control Center

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SECTION 3, PAYLOAD CADRE TRAINING OVERVIEW

3.1 CADRE TRAINING PARTICIPANTS' RESPONSIBILITIES

Training and certification participants include trainees, mentors, the Payload GSP Training Coordinator (PGSPT Coord), MSFC Group Management, and the NASA Payload Operations and Integration (POI) Department Management. Each participant has specific duties to perform during the training process. These duties are described in the following sections.

3.1.1 Trainees

Individuals assigned to positions defined within this document have a course curriculum. Trainees are responsible for working with their supervisor, mentor(s), and the PGSPT Coord to schedule training courses and obtain the necessary materials of study. Trainees are responsible for fulfilling self-study requirements and attending all training as scheduled.

3.1.2 MSFC Group Management

MSFC Group management includes group leads, team leads and contractor leads. The Group Lead has the responsibilities outlined in this section and may delegate authority with the exception of certification.

When a trainee is identified, the Group Lead will assign one or more mentors as technical experts to assist the trainee as needed. Based on the trainee's education and experience, the supervisor reviews and tailors the training and certification plan by exempting or adding courses to the position curriculum found in this document. The supervisor will provide the trainee's name, position assignment, and tailored curriculum to the PGSPT Coord. After this coordination, the trainee can begin the training plan.

The supervisor is responsible for coordinating any Position-Specific Training (PST) within the trainee's tailored plan. The members of group management can observe the trainee during simulations and other on-console exercises to assess the trainee's progress. After testing and using an evaluation checklist that reflects certification requirements, the Group Lead will review the trainee's progress and advise the trainee on training accomplishments. The Group Lead may also consult the mentors on the progress of trainees and offer advice on any areas needing more training. The Group Lead also serves as a facilitator to resolve any issues with certification between the increment Payload Operations Director (POD) and the trainee as required.

The Group Lead will review all training records and consult with mentor(s), Increment POD(s), and team leads as appropriate to verify training has been successfully completed and the trainee has met the criteria for certification. The Group Lead will sign and forward a certification record to the POI Department Management for signature.

3.1.3 Mentors

Each trainee will be assigned a mentor or mentors by their Group Lead to help guide the trainee through the training process. Ideally, the mentor(s) for a particular position will be an individual who has work experience and has been certified in that position. For Early Payload Accommodation (EPA), the mentor position will be filled by someone with previous mission experience or by someone who has worked extensively with ISS team development and operations. For example, the mentor(s) may have participated in developing the ISS team process flows or in developing the early tool requirements.

Mentors will serve as a source of knowledge on technical matters, operational concepts, organizational philosophy, and points-of-contact. They may share lessons learned from their own work experiences. Mentors will refer trainees to the proper experts or to the pertinent documentation when trainees have questions beyond the mentor's knowledge. The mentor may counsel with team lead and/or management with regard to the trainee's progress.

3.1.4 POI Department Management

At the completion of all phases of training, the POI Department Management will review and sign the trainee's certification record and supply the original copy to the PGSPT Coord to keep on file. The certification records will be used to support the Certification of Flight Readiness (CoFR) process, which requires a certification statement by the POI Department Manager that all sites, facilities, and personnel are ready to support payload operations.

3.1.5 PGSPT Coord

Once a trainee is assigned to a position, the trainee's name, position assignment, and tailored plan are submitted by the Group Lead to the PGSPT Coord and entered into a Training Records Database maintained by the PGSPT Coord. The PGSPT Coord then plans, schedules, and coordinates generic operations courses and increment-specific training courses as appropriate.

All payload cadre training requirements and records will be maintained by the PGSPT Coord. Exemptions, appeals, certification, or other issues related to the certification process will be maintained in the Training Records Database. The PGSPT Coord will organize and

present to the Group Lead all of the training records needed for certification. The PGSPT Coord will maintain quality assurance files of all certification records.

The PGSPT Coord will monitor development of generic and Payload-Specific Training (PLST) courses. Maintenance of all generic and PLST courses will be provided. As updates to courseware are provided by the disciplines, the PGSPT Coord will incorporate and maintain the materials to ensure quality content.

3.2 TRAINING COURSE DEVELOPMENT

Training materials for PST are the responsibility of the individual discipline. Development and updating of training materials for generic operations and PST are the responsibility of the discipline where the information resides. USA Academy courses, Computer-Based Trainers (CBT), and other previously developed training materials are available via other means, including (but not limited to) video tape, roundtable discussion, hands-on classes, and the World Wide Web (WWW). All training other than PST will be maintained by the PGSPT Coord. The PGSPT Coord will schedule periodic reviews to ensure coursework is updated appropriately.

3.3 PAYLOAD CADRE TRAINING COURSE DEFINITION

The courses required for POIC certification are defined by the Payload GSP Training Strategy Team (TST). This definition includes course numbers, course titles, synopses, and training delivery methods. In addition, the TST process determines which cadre positions need which courses and the training flow for each position. A list of all payload cadre training courses can be found in Appendix B.

3.3.1 *PST*

This training, which occurs at Increment minus (I-) 18 to I-12, includes the details of how personnel are to perform the specific functions of every position. The development, maintenance, and implementation of the training are the responsibility of the organization tasked with staffing that position.

3.3.2 *Generic Operations Training (GOT)*

Generic Operations Training (GOT), which occurs at I-18 to I-12, consists of general information needed to understand the ISS and the ground support structure as a whole. Generic training includes instruction on payload ground facilities; generic ground operations; ground team organizations, interactions, and functions; ISS systems and overviews; and payload support equipment and activities. GOT is provided to all POIC cadre trainees.

3.3.3 USA Academy Courses

USA Academy courses consist of documents on orbiter/mission control systems. They are identified in the Course Catalog by the "STADOC" prefix in the course number. These courses are developed and maintained by JSC. Selected courses are included as part of each position's training requirements. The PGSPT Coord serves as the librarian for these courses.

3.3.4 Enhanced HOSC System (EHS) Courses

EHS courses consist of workbooks and hands-on exercises designed to teach mechanics, applications, and capabilities of the EHS workstations. These classes will be provided by the EHS facility trainers. The PGSPT Coord and the EHS training personnel will coordinate these training classes.

3.3.5 Other Generic Operations Training

Other generic operations training is provided on an "as-needed" basis. This training may include, but is not limited to, use of part-task trainer (a semi-functional panel which supports training on the procedures for use of a particular piece of hardware), support of data flows, support of testing, and observation during actual mission activity.

3.3.6 Generic Exercises and On-the-Job Training (OJT)

Exercises may be conducted which allow certain positions to improve skills to meet specific objectives associated with certification. The trainee will perform OJT training and task performance with support. The on-duty console operator will provide evaluation feedback to the trainee.

Level 1 is OJT in observation mode. The trainee sits with an on-duty console operator to observe the activity associated with the position.

Level 2 is OJT task performance with support. The trainee sits with an on-duty console operator and works the position. The on-duty operator guides and assists the trainee in the job performance.

Level 3 is OJT in a stand-alone environment. The trainee sits the console position without assistance. This level is performed with the approval of the Increment POD.

OJT occurs when a trainee performs an assigned function in a "real-life" environment. This type of training occurs during actual operations including testing, verification, and flight.

3.3.7 *PLST*

PLST occurs at I-12 to I-6 and is provided for positions that need detailed knowledge about the payloads on the ISS for a particular increment as defined in the TST process. PLST includes familiarization with the operation, activity, science objectives, and safety issues of the facilities and experiments for each increment.

3.3.8 *Simulations*

The POIC cadre is required to participate in simulations as determined by the increment-specific simulation TST. The types and objectives of simulations will be developed by the generic simulation TST and documented in the Simulations Guidelines Document. The PGSPT Coord will maintain the records of the simulation participation in the Training Records Database.

3.4 COURSE EXEMPTION

A course exemption can be given when experience and knowledge is to a degree that the trainee does not need to take a course in order to perform the functions of the position. Any course exemption must be approved by the Group Lead. (See Figure 3-1, Course Exemption Request.)

COURSE EXEMPTION REQUEST	
NAME:	_____
NAME OF COURSE:	_____
RATIONALE FOR EXEMPTION:	

POI GROUP LEAD SIGNATURE AND DATE	

FIGURE 3-1 COURSE EXEMPTION REQUEST

SECTION 4, CADRE CERTIFICATION

4.1 CRITERIA FOR POSITIONS REQUIRING CERTIFICATION

MSFC requires formal training of all Payload GSP. All Payload GSP must complete the training for the position to which they are assigned. Positions requiring certification must meet the position certification requirements documented in Appendix A.1, Payload Cadre Certification Requirements. Evaluation procedures may vary by position. All certifications will follow the standards and procedures described herein.

Positions requiring certification are determined by the following criteria:

- A. Work a regularly staffed position and must have a level of proficiency that the individual can answer/respond in realtime to those areas for which he or she is responsible.
- B. Configure safety or mission-critical flight and ground hardware and/or software, either through planning its configuration or direct command and response actions.
- C. Produce payload flight operations products in support of the increment underway (does not include pre-increment preparation).
- D. Train the crew to properly perform payload flight hardware/software operations.
- E. Integrate the payload training requirements for an increment according to program processes and procedures.

4.2 CADRE POSITIONS REQUIRING CERTIFICATION

Bandwidth Integration Timeliner	BANDITCommand Payload
MDM Officer	CPO
Data Management Coordinator	DMC
Data Systems Manager	DSM
Earth to Orbit Vehicle Planner	ETOV Planner
HSG Payload Lead	HPL
HSG Payload Operations	HPO
Interface Planning Engineer	IPE
Lead Increment Scientist	LIS
Operations Controller	OC

Payload Communications Manager	PAYCOM
Payload Instructor	PAYLOAD INSTRUCTOR
Photographic and Television Operations Manager	PHANTOM
Payload Operations Director	POD
Payload Operations Data File Support	PODF Support
POIC Safety	POIC SAFETY
Payload Planning Manager	PPM
Payload Planning Scheduling Engineer	PPSE
Payload Rack Officer	PRO
Payload Systems Engineer	PSE
Payload Training Integrator	PTI
POIC Stowage	POIC STOWAGE
Systems Configuration Manager	SCM
Shuttle Operations Coordinator	SOC
Timeline Change Officer	TCO
Timeline Maintenance Manager	TMM
Weekly Implementer of Systems & Resources for Data	WISARD

4.3 CERTIFICATION PROCESS

Trainees will be assessed at various points throughout the training flow (See Figure 4-1, POIF Training Certification Flow). Through the Phase reviews as described in the flow, the trainee's skills and knowledge will be evaluated by the Group Lead using tests and checklists and by consultation with increment PODs, mentors, team leads, and OJT support positions as appropriate. The checklist is a list of skills and work-related functions based on the certification requirements for the position. Once the trainee completes all required training and meets certification requirements, certification can be recommended. After the certification recommendation is reviewed and approved by Department management, the trainee may assume responsibility in the assigned position.

The trainee's tailored training plan will be conducted in phases and levels as follows:

Phase 1: Training coursework includes generic and position-specific courses.

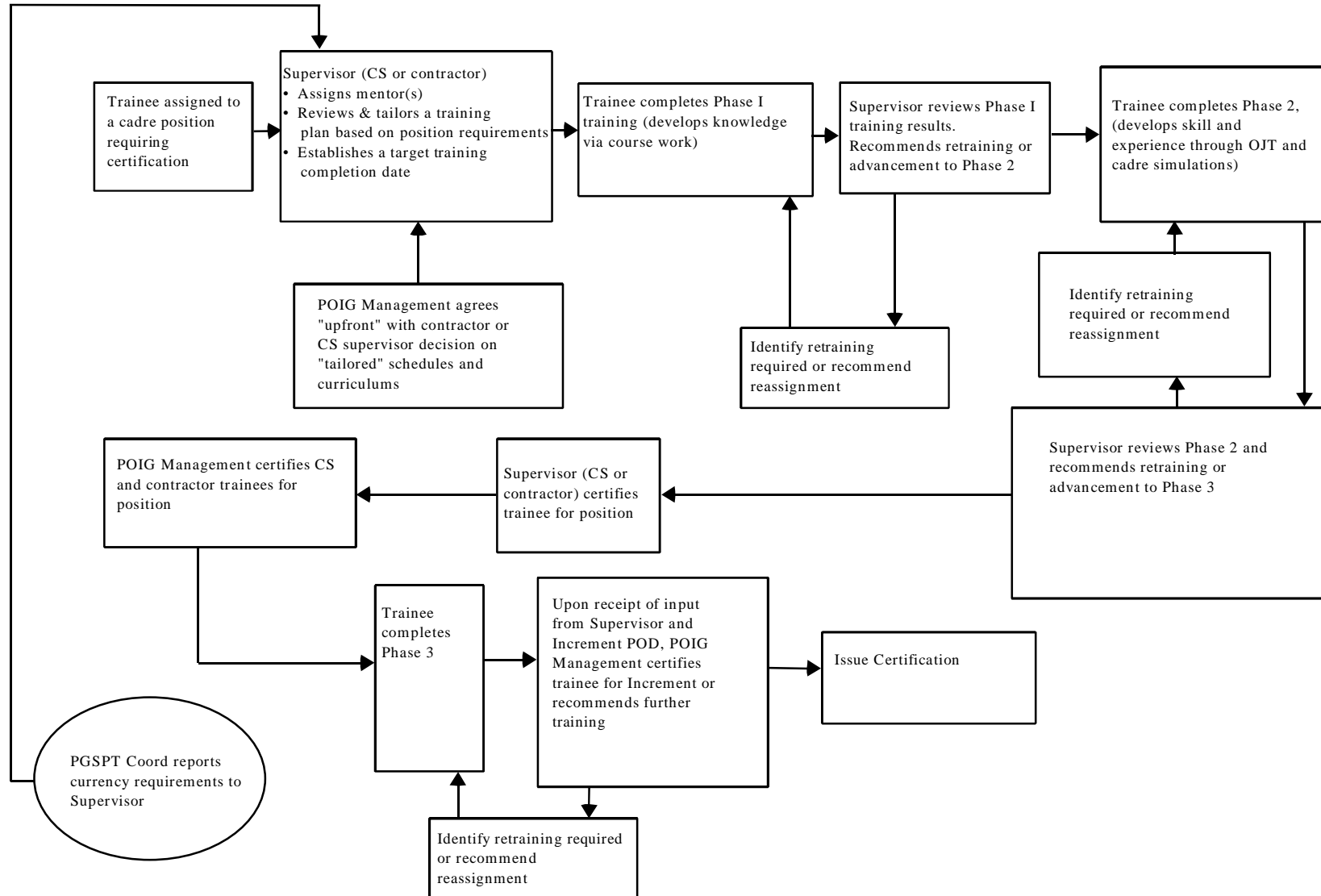
Phase 2: Generic simulations and OJT

Level 1: OJT: OJT in observation mode and generic sims

Level 2: OJT: OJT task performance with support

Phase 3: PLST, increment simulations, and OJT

Level 3: OJT: OJT stand-alone performance



Upon completion of the PLST, the trainee then participates in increment simulations. OJT is stand-alone performance with the approval of the on-duty POD. The trainee's Group Lead and increment POD will provide to POI management recommendation on increment-specific certification.

4.3.1 Certification Course Work

The types of curriculum course work for all positions are described in Section 3.3, Payload Cadre Training Course Definition. The entire training catalog of required course work with synopses is documented in Appendix B, Course Catalog. Course work required for each position is found in Appendix C.

4.3.2 Progress Reviews

The trainee's Group Lead will conduct progress reviews with the trainee and will give the trainee a verbal endorsement to proceed with further training. The PGSPT Coord tracks the trainee's progress and at the end of each phase of training delivers a report to the increment lead POD. When all certification requirements have been met, the PGSPT Coord will submit a report of all certification to the increment lead POD for inclusion in the CoFR process.

4.3.3 Certification Evaluations

Trainees will be evaluated during the course of the training. Some course work, as appropriate, should contain self-check tests for the trainee to evaluate his or her personal progress and understanding of the training objectives. These self-check tests will not be graded or documented. They are intended to help the trainee gauge his or her understanding of the training material. If special tests (beyond the self-check tests) are required, these tests will be explicitly documented in the certification requirements for applicable positions.

4.4 INCREMENT ADD-ONS

Once a trainee has successfully completed all training and certification requirements for the first increment assigned, the trainee will be certified to perform the tasks of that certified position. For each subsequent increment the trainee will support in that certified position, the trainee must complete all the required increment-specific training for the applicable increment. When the trainee has completed the increment-specific training, he or she will receive increment add-ons to the position certificate.

4.5 CERTIFICATES

A certificate is a single page document which attests that a person is authorized by POI Department to perform in a Payload GSP position. The certificate will specify the person's name, position, and date of certification. The signatures of the Group Lead and the Department Manager will be on the certificate. The certificate will be prepared by the PGSPT Coord immediately upon receipt of the recommendation of certification from the trainee's Group Lead. It will be signed by the Group Lead and the POI Department Manager. A certificate is sent to and held by the certified person. The PGSPT Coord maintains quality assurance records of all certificates issued. (See Figure 4-2, Permanent Certificate, for an example of the position certificate.)

4.6 CURRENCY REVIEW

Currency is defined as maintaining certification by taking delta training or other training as defined in the position's certification requirements. All individuals shall complete a currency review at least every 12 months or upon assignment to an increment. The currency review, conducted by the Group Lead, is a review of the training records applicable to the certificate held by the individual. It must include a review of the significant changes to the ISS and a check that any required currency training for the position has been accomplished. The completion of this review is reported to the PGSPT Coord and entered in the training records. As required, this information is included in the training report given to the increment POD for CoFR. The PGSPT Coord will report currency requirements to Group Leads on a periodic basis.

<p style="text-align: center;"><i>"Console Name"</i> CERTIFICATION</p>	
<p>Having reviewed the credentials and training, the Payload Operations and Integration Department confers this certification to</p>	
<p style="text-align: center;"><i>John Doe</i></p>	
<p>This day _____ of _____ (month), _____ (year)</p>	
<p>Increment Add-ons (Stamp):</p>	
<p>_____</p> <p>Group Lead Certifying Authority</p>	<p>_____</p> <p>Department Manager</p>

FIGURE 4-2 PERMANENT CERTIFICATE

SECTION 5, FACILITY PERSONNEL TRAINING AND CERTIFICATION

5.1 TSC RESPONSIBILITIES

It is the responsibility of each TSC to ensure all personnel who operate within the center are appropriately trained on the operation and capability of equipment necessary to perform their duties during simulations and flight. Individuals operating at MSFC will be notified of training opportunities. All TSC team members are welcome to come to MSFC and take training on EHS. The PGSPT Coord will coordinate and schedule this training.

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SECTION 6, PAYLOAD DEVELOPER TRAINING OVERVIEW

6.1 PD PARTICIPANTS' RESPONSIBILITIES

Training participants include PD team GSP training contact, trainees, and the PGSPT Coord. PDs are responsible for developing, implementing, and documenting their internal training. Payload Operations and Integration Department is responsible for providing PD interface training. It is the responsibility of the PD to develop the training plan for internal team training and to maintain and provide the associated records of completed training to the PGSPT Coord. All members of PD teams have a curriculum based on the duties and responsibilities of the team member. This curriculum is defined in Appendix C, and the courses are described in Appendix B, Course Catalog.

6.1.1 Training Contact

Each PD shall provide to the PGSPT Coord the name of the PD GSP training contact for the team in the Training Data Set no later than I-14. Though training does not begin until I-12 months, a training contact is needed in case there are general questions about team functions or opportunities for information sharing prior to the actual start of training.

The PD GSP team training contact from each team is responsible for forwarding the internal PD team training plans and records to the PGSPT Coord 1 month prior to PD team participation in simulations.

6.1.2 Trainees

By I-9 months, the PD GSP training contact will also complete the Payload Developer Team Identification Form in the Training Data Set. The functions or duties the individuals will perform for the team will determine the training courses needed. The MSFC training team and other cadre personnel use the information provided on the Payload Developer Identification Form to better understand the experiment team structure and operation.

A curriculum has been defined for the following functions:

A. Operations Management

Team members who manage the team's activity during the mission and the focal point for decision making.

B. Operations Support

Team members responsible for providing direct support to the management function but will not necessarily be responsible for Payload Information Management System (PIMS), Space-to-Ground Communications or Commanding.

C. Space-to-Ground

Team members identified to communicate directly with the crew on the space-to-ground loop.

D. Payload Information Management System

Team members responsible for interacting with PIMS. PIMS provides configuration management of documents, change requests, and bulletins.

E. Command

Team members responsible for sending commands to their experiment.

F. Data

Team members responsible for monitoring downlink data using the HOSC EHS and Telemetry Resource Kit (TReK) Workstation.

G. EGSE/Facility Operations

Team members who will not be interfacing directly with the POIC cadre, but are responsible for monitoring Experiment Ground Support Equipment (EGSE) supplied by the science team or ground support equipment data relative to an on-board facility or experiment.

H. Planning

Team members responsible for inputs to the on-board planning documents.

I. Hardware/Software Support

Team members who provide direct operational support for the teams flight hardware and software.

J. Procedures

Team members responsible for updating and overseeing the manual and automated operating procedures as well as for developing the payload displays to support flight operations.

K. Other

Team members whose assignments do not fall within the above-defined categories, but who should have general knowledge of the team's interface with the POIC and ISS operational procedures.

L. Crew Training Instructor

Team member responsible for providing training to the crew.

6.1.3 PGSPT Coord

All POIC-to-PD interface training curricula and individual records of training will be maintained by the PGSPT Coord. The PGSPT Coord is the primary point of contact for training courses and will issue and track the completion of POIC-provided training to the PDs. The PD GSP training contact is the interface for the PGSPT Coord to receive and document individual PD internal team training plans and records. The PGSPT Coord organizes and delivers to the increment POD and the PD GSP training contact all of the training records needed to carry forward to management for certification per CoFR. The records of exemptions, re-certification, or other issues related to the certification process will be maintained in a Training Records Database by the PGSPT Coord.

6.2 PD TEAM TRAINING COURSE DEFINITION

The type of training and the number of courses each team member will take is dependent upon the function held within the PD team. The generic PD training curriculum was defined by the MSFC PD TST with PD team input. The courses required of the PD teams for certification are documented in Appendix C. The description of these courses, found in the Course Catalog, Appendix B, includes course numbers, course titles, synopses, and delivery methods. In addition the PD TST determined the training flows for each PD team function. These training flows are documented in Appendix D.

6.2.1 Generic Operations Training

Generic operations training is provided to all PD teams who interact with the POIC. Generic operations training consists of general information that is needed to understand the

ISS and the ground support structure as a whole. Generic training includes instruction on payload ground facilities, generic ground operations, ground team organizations, interactions, and functions, ISS systems and their operations as well as payload support equipment/activities. These courses are videotapes, handouts, and workbooks and will be delivered to the team members at the appropriate time in the training schedule.

6.2.2 USA Academy Courses

Some USA Academy courses may be required for all PD teams. They are identified in the Course Catalog by the "STADOC" prefix in the course number. These courses will be developed and maintained by Johnson Space Center (JSC). The PGSPT Coord serves as the librarian for these courses and will make the training materials available to the team members at the appropriate time.

6.2.3 EHS Courses

EHS courses are developed by the EHS facility trainers and serve as part of the PD training curriculum for certification. These courses will train the PD teams on display building, command generation, data systems, HOSC tools, the telemetry database, and any other information necessary to operate and communicate with the POIC cadre. These courses are designed for individuals using the MSFC EHS.

6.2.4 PLST

Through the PD internal team training, PD trainees should already know the specifics of their experiment payload operations, limitations, and activities on board ISS. PLST includes familiarization with their operation, activity, and interfaces for the systems, facilities and experiments for each increment.

6.3 TRAINING DELIVERY

Team travel to MSFC to acquire interface training will not be required. The training delivery for each increment is dependent upon the location of the PD team console operations and the type of support each PD team's science requires. The most common means of training delivery will be to send a training representative from a remote site to attend training at MSFC during any scheduled training sessions. The training representative will return to their site and provide training to the rest of the team.

POIC-to-PD interface training will be provided to the following locations:

MSFC TSC. This training will primarily be given during briefings and roundtable discussions directly to the Payload Operations personnel at MSFC.

Other NASA TSCs (e.g., JSC, LeRC, ARC, etc.). Depending on the level of detail needed between the POIC cadre and the PD teams, this training will be given primarily via telecon or videocon to the Centers. Information delivered via videotape is also an option.

Other remote sites (e.g., PD or investigator locations or universities). The training will be given via telecon and/or videotape depending on the level of detail needed between the POIC cadre and the PD teams.

6.4 SIMULATIONS

GSP as members of PD teams are required to participate in simulations as determined by the simulation TST and this Certification and Training Plan. Prior to simulation participation, coursework must be completed which will promote successful accomplishment of sim objectives. Simulations are a part of the PD training curriculum to ensure complete understanding of the operational philosophy for payload operations by all payload teams and the POIC. The types and objectives of the simulations will be developed by the simulation TST and documented in the simulation Guidelines Document. The PGSPT Coord will maintain the records of all trainee participation in the payload simulations.

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SECTION 7, PAYLOAD DEVELOPER TEAM CERTIFICATION

7.1 CERTIFICATION PROCESS

MSFC requires formal training of all PD team GSP. Key personnel must know their roles and fulfill their responsibilities to ensure certification processes and goals are met. All PD team members must complete the training for the position to which they are assigned. The certification plan for PD teams is outlined in Appendix A.2, Payload Developer Team Certification Requirements. All certifications will follow the standards and procedures described herein.

The certification process for all PD experiment teams, whether a facility class payload or a subrack payload experiment, requires all team members to complete internal PD team training, complete the required POI -provided interface training, and participate in required simulations. The PD GSP training contact is required to issue quarterly reports to the PGSPT Coord.

Approval to work in certified positions will be initiated once the trainee completes all required training, meets the certification requirements, and has received a certificate from the increment Payload Operations Director (POD). (See Figure 7-1, Payload Developer Team Certification Process.)

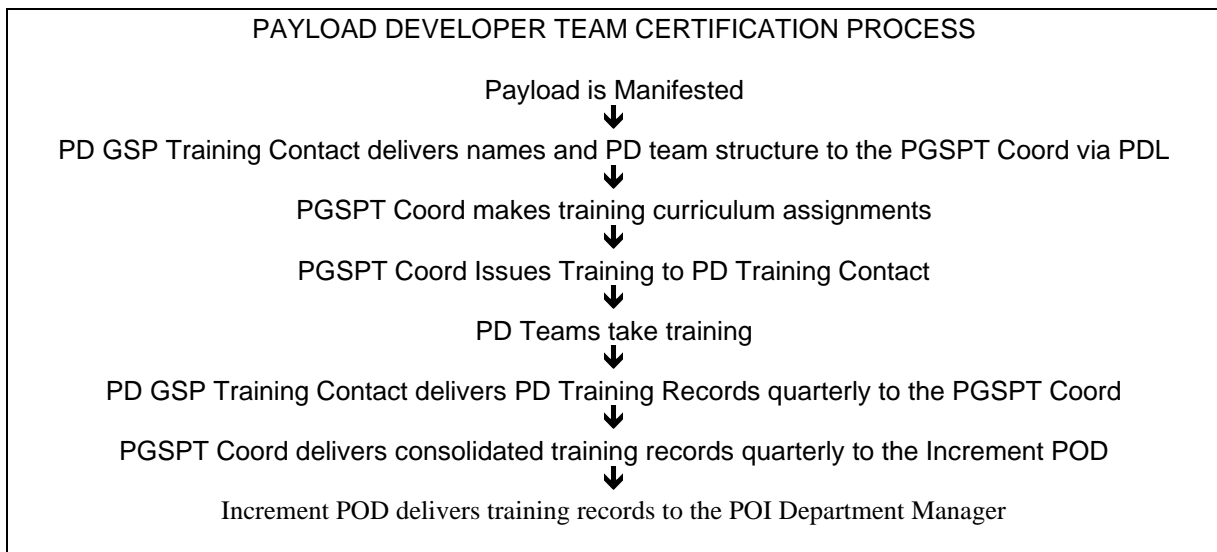


FIGURE 7-1 PAYLOAD DEVELOPER TEAM CERTIFICATION PROCESS

7.2 CERTIFICATION COURSE WORK

The types of curriculum course work for all PD functions are described in Section 6.2, Payload Developer Training Course Definition. The entire course catalog of all course work with synopses is in Appendix B, Course Catalog. This course work is defined by the certification requirements for each PD function found in Appendix A. The curriculum for each position is found in Appendix C. These requirements are essential to the certification process.

7.3 PROGRESS REVIEWS

As part of the certification process, the PD GSP training contact and the PGSPT Coord will review the trainee's progress and determine if the team trainees are ready for certification. The PGSPT Coord will collect data from the PD GSP training contact on trainee's status and forward a report to the increment POD. A copy of this report will be given to the team's PD GSP training contact.

7.4 CERTIFICATES

Certificates will be provided to team members by the PGSPT Coord upon the recommendation of the POD. Each certificate will identify the ISS Increment and the function for which the team member is certified. (See Figure 7-2, Console Function Certification, for an example of a certificate for PD console functions.)

<p style="text-align: center;">CONSOLE FUNCTION(S) CERTIFICATION FOR INCREMENT XX</p> <p>Having reviewed the credentials and training, the Payload Operations and Integration Department confers</p> <p>this certification to</p> <p style="text-align: center;"><i>John Doe</i> <i>Experiment Team</i></p> <p>in the function of _____ for Increment _____.</p> <p>This day _____ (date)</p> <p>_____ Payload Operations Integration Manager</p> <p>_____ Increment Lead Payload Operations Director</p>

FIGURE 7-2 CONSOLE FUNCTION CERTIFICATION

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SECTION 8, INTERNATIONAL PARTNER TEAM TRAINING AND CERTIFICATION

Training on interface operations between Partner Control Centers and the POIC is required per the Multilateral Training Management Plan, Volume 2 (MTMP, Vol. 2). The Payload Ground Support personnel and Training personnel shall support this interface training as specified in MTMP, Vol. 2.

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APPENDIX A
CERTIFICATION REQUIREMENTS

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A.1, CADRE CERTIFICATION REQUIREMENTS

Bandwidth Integration Timeliner (BANDIT) Certification Requirements

I. Applicability

This document describes the requirements for the issuance Bandwidth Integration Timeliner (BANDIT) certificate.

II. Eligibility Requirements

To be eligible for a BANDIT certificate, a person must:

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science. Non-technical degree or Associates degree requires a minimum of 2 years directly applicable work experience in space operations, real-time spacecraft operations, and/or engineering integration and will be considered on a case-by-case basis. Experience in planning or timeline development is highly desired.
- B. Be assigned to the ISS Data Management organization at MSFC.
- C. Be able to read, speak, write, and understand the English language.
- D. Receive an endorsement from the increment POD and PLSS Systems Group Lead.
- E. Receive instruction in the knowledge identified in “Core Knowledge” section.
- F. Receive instruction in the skills identified in the “Core Skills” section.
- G. A BANDIT candidate must be skilled in using a Personal Computer.
- H. A BANDIT candidate must have excellent written and verbal communication skills.
- I. Meet the data management experience requirements listed in Section V.
- J. A BANDIT candidate must successfully complete an evaluation by their supervisor.

III. Knowledge Requirements

A. BANDIT Core Knowledge

Core Knowledge defines those areas that are basic to staffing a console position. The areas listed below are the core knowledge requirements for the BANDIT position.

- 1. ISS Program agreements (Systems-Payloads, Partner-Partner, ISS-payloads)
- 2. ISS concepts, terminology, and acronyms
- 3. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- 4. POI documentation Tree
- 5. Payload Operations Concept
- 6. ISS elements capabilities, interfaces, and configurations
- 7. PIMS (including OCRs, email)
- 8. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- 9. General payload knowledge (i.e., data rates, location, etc.)
- 10. EXPRESS Rack operations (related to data and video generation/transmission)
- 11. Ground systems (i.e., PPS, IOP)
- 12. Payload Complement Definition

13. International Partner protocol
14. Communications Networks
15. Inter-team interfaces
16. Intra-team interfaces

B. BANDIT Specific Knowledge

Specific Knowledge defines those areas of knowledge that are specific to the BANDIT position. The BANDIT must be trained in each of these areas in order to have the knowledge foundation upon which simulation participation and OJT are based.

1. PLMDM Capabilities
2. MIL-STD-1553B Bus Capabilities
3. HRFM Capabilities
4. APS Capabilities
5. PEHG Capabilities
6. VBSP Capabilities
7. VSU Capabilities
8. VTR Capabilities
9. General Ethernet Capabilities
10. MCOR/HCOR Capabilities
11. Ops LAN operations
12. DM Planning interfaces within Short Term Planning Team
13. DM Planning interfaces with payload users
14. DM Planning interfaces with International Partners
15. End-to-End Data System connectivity
16. EXPRESS Rack data/video capabilities
17. ISPR-payload data connectivity
18. External Facility-payload data connectivity
19. NASDA/JEM data system and US Lab connectivity
20. ESA/COF data system and US Lab connectivity
21. PDSS
22. TDRSS Scheduling and Coordination
23. iURC/URC
24. Payload requirements (i.e., data rates, video, rack location, etc.)
25. Data Systems Routing & Configuration (DSRC) Software
26. Data Flow Plan (DFP) development, format, and contents
27. DSRC Checklist development, format, and contents
28. Ops LAN operations and configurations
29. Data Management Team Concept of Operations
30. Data Management Team defined operational constraints
31. External Data Repository (EDR)
32. Product Generation (PG)
33. Short Term Planning Concept

IV. Skills

A. BANDIT Core Skills

1. A BANDIT candidate must have the ability to use appropriate terminology and acronyms.
2. A BANDIT candidate must be skilled in general console operations.
3. A BANDIT candidate must be skilled in the use of communications protocol.

4. A BANDIT candidate must be skilled in the use of PIMS.
5. A BANDIT candidate must be skilled in the use of the EHS systems necessary to perform the console job.

B. BANDIT Specific Skills

1. A BANDIT candidate must be skilled in using all facets of the DSRC software.
2. A BANDIT candidate must be skilled in reading and interpreting the Data Flow Plan (DFP) and DSRC Checklist.
3. A BANDIT candidate must be skilled in the use of the Product Generation (PG) application.
4. A BANDIT candidate must be skilled in reading and interpreting the Short Term Plan (STP).
5. A BANDIT candidate must be skilled in implementing DM planning concepts.

V. Experience

- A. A BANDIT candidate must demonstrate the above required skills and knowledge while working in a realtime or simulated mission environment.

B. Simulations

1. A BANDIT candidate must participate in at least 64 hours of simulations in preparation for their initial increment assignment.
2. An experienced ISS BANDIT must participate in at least 24 hours of simulations to be re-certified for a new increment.

C. Previous space mission experience:

1. A BANDIT candidate may be credited up to 16 hours of the required simulation experience if they have mission experience as a Spacelab Data Replanner (DREP).

D. On-the Job Training (OJT)

A BANDIT candidate will develop the skills required for the BANDIT position by assisting with console duties under the supervision of a certified BANDIT. A BANDIT candidate is required to perform at least 32 hours of OJT.

Command and PLMDM Officer (CPO)

I. Applicability

This appendix contains the certification requirements for the CPO.

II. Eligibility Requirements

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science; 2 years experience in networking, software coding, computer systems, and network integration is desirable, but not mandatory. Non-technical degree or Associates degree requires a minimum of 5 years directly applicable work experience in space operations, real-time spacecraft operations, and/or engineering integration and will be considered on a case-by-case basis. Experience in real-time command and control is highly desirable.
- B. Read, speak, write, and understand the English language
- C. Skilled in written and verbal communication
- D. Skilled in using Personal Computer
- E. POIF Operations Control Team Member

III. Core Knowledge

- A. ISS concepts, terminology, and acronyms
- B. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- C. POI Documentation Tree
- D. Payload Operations Concept
- E. ISS elements capabilities, interfaces, and configurations
- F. PIMS (including OCRs, E-mail)
- G. HOSC systems, software and interfaces
- H. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- I. General payload knowledge (subsystems used, rack location, etc.)
- J. Ground systems (i.e., PPS, IOP, PDL)
- K. Payload Complement Definition
- L. International Partner protocol
- M. Voice and Communications Protocol
- N. Inter-team interfaces
- O. Intra-team interfaces
- P. Planning concepts
- Q. Flight Crew Systems
- R. Use of EHS mission displays and scripts

- S. Manual Procedures Development
- T. Selected ODF crew procedures
- IV. Specific Knowledge
 - A. CPO must have general knowledge of the ISS and its subsystems (C&DH, C&T, File transfer capabilities and ground command and monitoring systems). This knowledge includes detailed knowledge of command link management, interfaces and relationships (end to end) from user facilities and IPs through the HOSC, MCC-H, TDRSS Ground Stations, the C&C MDM, and the PLMDM to payloads
 - B. CPO should know payload objectives and configuration for payloads operable during time of certification.
 - C. CPO must have extensive knowledge of the operations of the systems that support payload operations, including knowledge of the operational impacts of system components and failures affecting payloads. These systems include the Payload MDM, PL MDM MSD, 1553 bus, Timeliner application and C&C MDM. This includes ETE commanding and File Uplink.
 - D. CPO must have knowledge of required MCC-H, IP and Payload Developer control center positions and interfaces.
 - E. CPO must have knowledge of automated and manual procedures.
 - F. A CPO must have knowledge of POIC facilities, systems, and software related to commanding and file transfer.
- V. Core Skills
 - A. Operating EHS software
 - B. On console operations including voice protocol, OCR process, shift reports, handovers, maintaining console logs and POIC facility usage
- VI. Specific Skills

CPO must be proficient at:

 - A. Organizing and leading a team of skilled professionals in the preparation for and execution of payload operations
 - B. Operating OCMS software
 - C. Operating expert systems and other tools
 - D. Reading and interpreting schematics
 - E. Troubleshooting systems and payloads to systems interfaces
 - F. Interpreting telemetry and analyzing trends
 - G. Performing ground procedures for safety, Payload safing and PLSS configuration

VII. Experience

CPO must have the following experience:

- A. Minimum of 40 hours of OJT in an observer/assistant role (this includes on shift of rack installation and checkout activities). (requirement effective after first month of realtime support)
- B. Minimum of 40 hours of OJT as prime operator with a certified (position and increment) person to oversee all operations (requirement effective after first month of realtime support)
- C. Minimum of 40 hours of on-console operations via simulations and OJT (requirement effective after first month of realtime support)
- D. NOTE: Previous operations experience may be substituted for OJT, as management deems appropriate and relevant.

VIII. Currency Requirements

For continued active console duties, the currency requirements are:

- A. Familiarity of any operations notes for system changes
- B. Refresher training on any course updates

If the certified person has been away from console duties for 6 months or more, the currency requirements are:

- A. ISS Documentation refresher
- B. POI Documentation refresher
- C. ISS element's capabilities, interfaces, and configurations
- D. Familiarity with changes to the ISS systems
- E. Familiarity with changes to ISS Payloads
- F. Familiarity with changes to ISS Program
- G. Eight hours OJT of on-console operations, including voice protocol, OCR processing, Shift Reports, handovers, logging, and POIC facility utilization

Data Management Coordinator (DMC) Certification Requirements

I. Applicability

This document describes the requirements for the issuance of a Data Management Coordinator (DMC) certificate.

II. Eligibility Requirements

To be eligible for a DMC certificate, a person must:

- A. Be able to read, speak, write, and understand the English language.
- B. Requires a Bachelor of Science degree in a recognized field of engineering or science; 2 years experience in space operations and/or engineering integration experience is desirable, but not mandatory. Non-technical degree or Associates degree requires a minimum of 5 years directly applicable work experience in space operations, real-time spacecraft operations, and/or engineering integration, and will be considered on a case-by-case basis. Experience in real-time command and control highly desirable.
- C. Be assigned to the ISS Data Management organization at MSFC.
- D. Receive instruction in the knowledge identified in “Core Knowledge” section.
- E. Receive instruction in the skills identified in the “Core Skills” section.
- F. Meet the data management experience requirements listed in Section V.
- G. Successfully complete an evaluation by their supervisor.
- H. Receive an endorsement from the increment Lead POD and PLSS Systems Group Lead.

III. Knowledge Requirements

A. Core Knowledge

Core Knowledge defines those areas that are basic to staffing a console position. The areas listed below are the core knowledge requirements for the DMC position.

- 1. ISS Program agreements (Systems-Payloads, Partner-Partner, ISS-payloads)
- 2. ISS concepts, terminology, and acronyms
- 3. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- 4. POI Documentation Tree
- 5. Payload Operations Concept
- 6. ISS elements capabilities, interfaces, and configurations
- 7. PIMS (including OCRs, E-mail)
- 8. EHS
- 9. Flight products (i.e., Product Generation (PG) outputs, STP)
- 10. OSTP
- 11. General payload knowledge (i.e., data rates, location, etc.)
- 12. EXPRESS Rack operations (related to data generation)
- 13. Ground systems (i.e., PPS, IOP, PDL)
- 14. General ETOV operations
- 15. General Commanding
- 16. Payload Complement Definition
- 17. International Partner protocol

18. Communications Networks
19. Voice and Communications Protocol
20. PLSS
21. Inter-team interfaces
22. Intra-team interfaces
23. Planning concepts
24. Use of EHS mission displays and scripts
25. MPLM configuration
26. TIMELINER Procedures
27. ODF crew procedures
28. LSE and PSE
29. VBSP operations
30. VSU operations
31. VTR operations
32. Video Uplink procedures

B. DMC Specific Knowledge

Specific Knowledge defines those areas of knowledge that are specific to the DMC position. The DMC must be trained in each of these areas in order to have the knowledge foundation upon which simulation participation and OJT are based.

1. C&C/MDM Operation
2. PLMDM Operation
3. HRFM Operation
4. APS Operation
5. PEHG Operation
6. General Ethernet Operation
7. Digital Signal Processing (CCSDS packets, APIDs, etc.)
8. MCOR/HCOR Operation
9. Ops LAN operations
10. End-to-End Data Systems connectivity
11. "DMC" Console Tool Operation, comps, and scripts
12. Data System Health & Status data
13. Time-Tag Commanding
14. Data System Commanding
15. Data System anomaly identification, work-around, and resolution
16. Data System ground command procedures
17. Operational Data System interfaces with MCC-H
18. Operational Data System interfaces with International Partners
19. Data System interfaces with International Partner Modules
20. Operational interfaces with payload users
21. Specific payload knowledge (data rate, type, etc.)
22. EXPRESS Rack Ops related to data transfer
23. End-to-End Data System connectivity
24. ISPR-payload data connectivity
25. External Facility-payload data connectivity
26. NASDA/JEM data system and US Lab interfaces & connectivity
27. ESA/COF data system and US Lab interfaces & connectivity
28. PDSS
29. HOSC facilities
30. Portable Computer System (PCS) Operations

31. Remote Site interfaces
32. TSC interfaces
33. Ground Data Network Operations and Interfaces
34. TDRSS Scheduling and Coordination
35. Data Flow Plan (DFP) development, format, and contents
36. OCA operations
37. Ops LAN operations and configurations
38. EHS Database
39. Data Management Team Concept of Operations

IV. Skills

A. DMC Core Skills

1. A DMC candidate must have excellent written and verbal communication skills.
2. A DMC candidate must be skilled in using a Personal Computer.
3. A DMC candidate must have the ability to lead inter and intra team coordination.
4. A DMC candidate must have the ability to use appropriate terminology and acronyms.
5. A DMC candidate must be skilled in general console operations.
6. A DMC candidate must be skilled in the use of communications protocol.
7. A DMC candidate must be skilled in using displays, scripts, and console tools.
8. A DMC candidate must be skilled in the use of PIMS.
9. A DMC candidate must be skilled in the use of the EHS systems necessary to perform the console job.

B. DMC Specific Skills

1. A DMC candidate must be skilled in reading and interpreting the Data Flow Plan (DFP).
2. A DMC candidate must be skilled in reading the On-board Short Term Plan (OSTP).
3. A DMC candidate must be skilled in recognizing data system anomalies (includes APS, PEHG, HRFM, MCOR, HCOR)
4. A DMC candidate must be skilled in recognizing communication system problems (i.e., TDRSS, WSGT, etc.)
5. A DMC candidate must be skilled at coordinating and implementing realtime changes that affect the onboard data system configurations.
6. A DMC candidate must be skilled in issuing commands to the onboard data system.
7. A DMC candidate must be skilled in using the "DMC" console tool for issuing commands and receiving health & status telemetry.
8. A DMC candidate must be skilled in using the ISS Antenna Management (IAM) display.

V. Experience

- A. A DMC candidate must demonstrate the above required skills and knowledge while working in a realtime or simulated mission environment.

B. Simulations

1. A DMC candidate must participate in at least 64 hours of simulations in preparation for their assigned increment.

C. Previous space mission experience:

1. A DMC candidate may be credited up to 32 hours of the required simulation experience if they have mission experience as a Spacelab DMC.

2. An experienced ISS DMC must participate in at least 24 hours of simulations to be re-certified for a new increment.

D. On-the Job Training (OJT)

A DMC candidate will develop the skills required for the DMC position by assisting with console duties under the supervision of a certified DMC. A DMC candidate is required to perform at least 32 hours of OJT.

Interface Planning Engineer (IPE)

I. Applicability

This appendix contains the certification requirements for candidate personnel to work the IPE Short Term Planning console position in the POIC for the ISS program.

II. Eligibility Requirements

To be eligible for this position the candidate must:

- A. Read, speak, write and understand the English language.
- B. Have good verbal and written communication skills.
- C. Be proficient in the use of computers and standard desktop applications.
- D. Requires a Bachelor of Science degree in a recognized field of engineering or science or equivalent work experience in space operations planning, real-time spacecraft operations, and/or engineering integration. Four years experience in space operations planning and/or engineering integration experience is desirable, but not mandatory.
- E. Be assigned to the Mission Planning function at MSFC/Flight Projects Directorate.
- F. Have received and reported completion of training activities for the knowledge, skill, and experience areas prescribed in this appendix.

III. Knowledge Requirements

To perform the IPE responsibilities the candidate must have and maintain up-to-date knowledge of:

- A. Generic and increment-specific Flight Rules, Payload Regulations, Groundrules & Constraints, JOIP, and POH
- B. ISS component configurations, capabilities, and constraints
- C. On-board systems and subsystems capabilities (C&T, PCS, ECLSS...)
- D. Payload, Rack, and Facility operations
- E. Crew procedures
- F. Planning software components (PPS)
- G. Data file transfer protocols and procedures
- H. Ground systems applications, displays, and anomaly handling (EHS, PIMS, etc.)
- I. Payload Anomaly recognition and impact assessments
- J. Station-wide Resource planning and partner allocations
- K. Operations Preparation, STP and Realtime Planning process procedures
- L. Planning products formats and generation procedures (IOP/OOS, STP, OSTP, etc.)
- M. Payload complement requirements and constraints (ETOV (ascent & descent), transfer, ISS)
- N. Voice and cultural protocol
- O. POIC Team definition

- P. Applicable terminology and acronyms
- Q. COTS desktop utility applications (E-mail, MS-Office, etc.)
- R. Safety Overview

IV. Certification Skill Requirements

IPE Candidate must become proficient and maintain up-to-date skills in the following POIC procedures and functions (detailed IPE functions in TDD).

- A. Coordinate with NASA users to provide input to JEM and APM payload operations plans.
- B. Monitoring NASA payload operations in JEM and APM.
- C. Tracking usage and availability of NASA element resources in JEM and APM.
- D. Assessment and processing of Operations Change Requests (OCR).
- E. Evaluation of OCRs against NASA resource availabilities and allocations in JEM and APM.
- F. Coordination of timeline changes with NASA user teams, JEM and APM.
- G. Generate NASA element inputs to the STP and payload OOS.

V. Experience and Learning Activities

The preceding knowledge and skill requirements will be gained through a mix of one or more of the following activities.

- A. Development of mission planning concepts or planning tools.
- B. Participation in Bilateral/Multilateral TIMs, SPIWGs, ExPCP, and IEPT.
- C. Developing, reviewing and interacting with Stationwide operations documentation.
- D. On-the-job training in pre-flight operations preparation and console operations.
- E. Participation in tabletop reviews, walk-throughs, special studies, or mini-sims of mission planning processes and procedures.
- F. Hands-on practice with planning tools, computer hardware and software.
- G. Successful participation in integrated training and simulations.
- H. Observing and/or shadowing a certified IPE executing RT procedures.

Operations Controller (OC)

I. Applicability

This appendix contains the certification requirements for the OC.

II. Eligibility Requirements

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science with 2 years technical leadership experience in space operations and/or engineering integration. Non-technical degree or Associates degree requires a minimum of 5 years directly applicable work experience in space operations, real-time spacecraft operations, and/or engineering integration, and will be considered on a case-by-case basis.
- B. Read, speak, write, and understand the English language
- C. Skilled in written and verbal communication
- D. Skilled in using Personal Computer
- E. POIF Operations Control Team Member

III. Core Knowledge

- A. ISS concepts, terminology, and acronyms
- B. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- C. POI Documentation Tree
- D. Payload Operations Concept
- E. ISS elements capabilities, interfaces, and configurations
- F. PIMS (including OCRs, E-mail)
- G. HOSC systems, software and interfaces
- H. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- I. General payload knowledge (subsystems used, rack location, etc.)
- J. EXPRESS Rack operations
- K. Ground systems (i.e., PPS, IOP, PDL)
- L. General ETOV operations
- M. Payload Complement Definition
- N. International Partner protocol
- O. Voice and Communications Protocol
- P. PLSS
- Q. Inter-team interfaces
- R. Intra-team interfaces
- S. Planning concepts

- T. Flight Crew Systems
 - U. Use of EHS mission displays and scripts
 - V. Manual Procedures Development
 - W. TIMELINER Procedures
 - X. Selected ODF crew procedures
 - Y. ISS Stowage concepts and systems
- IV. Specific Knowledge
- A. An OC must have general knowledge of the ISS and its subsystems (C&DH, C&T, TCS, EPS, ECLSS), knowledge of the TReK workstation capabilities and payload objectives and configuration for payloads operable during the time period of certification.
 - B. An OC must have knowledge of the operational impacts of system components and failures affecting payloads. This knowledge includes Payload Support Systems, JEM Element PSS, COF Element PSS, payload interfaces to the systems in the NASA element, JEM and COF, EXPRESS Rack and Pallet subsystems, and the payload interfaces to EXPRESS rack and pallet.
 - C. The OC must have knowledge of OSTP generation, updates and expectations.
 - D. The OC must have knowledge of required MCC-H, IP and Payload Developer control center positions and interfaces.
 - E. An OC must have extensive knowledge of the payload safety concerns for payloads in the NASA element.
 - F. An OC must have knowledge of ETOV operations and the installation and checkout of racks and subrack payloads (includes MPLM, Middeck, etc.).
 - G. An OC must have knowledge of automated and manual procedures.
- V. Core Skills
- A. Operating EHS software
 - B. On console operations including voice protocol, OCR process, shift reports, handovers, maintaining console logs and POIC facility usage
- VI. Specific Skills
- OC must be proficient at:
- A. Organizing and leading a team of skilled professionals in the preparation for and execution of payload operations
 - B. Operating OCMS software
 - C. Operating expert systems and other tools
 - D. Reading and interpreting schematics
 - E. Troubleshooting systems and payloads to systems interfaces

- F. Interpreting telemetry and analyzing trends
- G. Performing ground procedures for safety, payload safing and PLSS configuration

VII. Experience

An OC must have the following experience:

- A. Minimum of 40 hours of OJT in an observer/assistant role (this includes on shift of rack installation and checkout activities). (requirement effective after first month of realtime support)
- B. Minimum of 40 hours of OJT as prime operator with a certified (position and increment) person to oversee all operations (requirement effective after first month of realtime support)
- C. Minimum of 40 hours of on-console operations via simulations and OJT (requirement effective after first month of realtime support)
- D. NOTE: Previous operations experience may be substituted for OJT, as management deems appropriate and relevant.

VIII. Currency Requirements

For continued active console duties, the currency requirements are:

- A. Familiarity of any operations notes for system changes
- B. Refresher training on any course updates

If the certified person has been away from console duties for 6 months or more, the currency requirements are:

- A. ISS Documentation refresher
- B. POI Documentation refresher
- C. ISS element's capabilities, interfaces, and configurations
- D. Familiarity with changes to the ISS systems
- E. Familiarity with changes to ISS payloads
- F. Familiarity with changes to ISS Program
- G. 8 hours OJT of on-console operations, including voice protocol, OCR processing, Shift Reports, handovers, logging, and POIC facility utilization

PAYCOM Certification Requirements

I. Applicability

This appendix prescribes the requirements for the issuance of the Payload Communications Manager (PAYCOM) certificate.

II. Eligibility Requirements

To be eligible for a PAYCOM certificate, a person must:

- A. Requires a Bachelor of Science or a Bachelor of Arts degree in engineering, business administration or other appropriate field. Experience in space operations is desirable, but not mandatory.
- B. Be assigned to the ISS payload operations and training organization at MSFC.
- C. Be able to read, speak, write, and understand the English language.
- D. Receive an endorsement from the increment POD and Team Lead.
- E. Receive instruction in the knowledge and skills identified in Sections III and IV, meet the training experience requirements of Section V, and complete any additional training requirements prescribed in their training plan.
- F. A PAYCOM candidate must successfully complete an evaluation by the PAYCOM supervisor.

III. Knowledge Requirements

A. Core Knowledge

A PAYCOM candidate must have core knowledge in the following areas:

- 1. General knowledge of ISS
- 2. Knowledge of Program Agreements
- 3. Knowledge of flight products (i.e., Product Generation (PG) outputs, Air-to-ground/space-to-ground/command plans, Onboard Short Term Plan (OSTP)
- 4. General station-wide knowledge of the assigned mission
- 5. General knowledge of US portion of assigned mission
- 6. General payload knowledge of the assigned payload complement
- 7. General Safety knowledge of mission to be worked and Payload Safety and Hazard controls
- 8. Knowledge of ground systems (i.e., Payload Planning System (PPS), Increment Operations Plan (IOP), Payload Data Library (PDL)).
- 9. Assembly configuration knowledge
- 10. Earth-To-Orbit-Vehicle (ETOV) operations knowledge
- 11. ISS elements capabilities, interfaces, and configurations
- 12. Knowledge of overall schedules (i.e., Payload Operations Integration (POI), Enhanced HOSC System, Simulations)
- 13. Knowledge of communications networks (Network Orientation)
- 14. Knowledge of international culture and customs
- 15. Knowledge of appropriate voice and communications protocols
- 16. General knowledge of Payload Support Systems (PLSS)

17. Payload operations concepts knowledge
18. Knowledge of POIC team structure per Team Definition Document
19. Knowledge of POI Documentation (POI Documentation Tree)
20. Knowledge of Inter-team interfaces and how to coordinate within the team
21. Knowledge of Intra-team interfaces and how to coordinate outside of the team
22. Knowledge of the processes defined in the Training Implementation Plan (TIP), Payload Training Implementation Plan (PTIP), Multilateral Training Management Plan (MTMP) Volumes 1 and 2, Station Program Implementation Plan (SPIP) Volumes 7, 8, and 9, Payload Data Sets Blank Book
23. Knowledge of ISS operations terminology & acronyms
24. Planning concepts knowledge
25. Knowledge of On Orbit Maintenance
26. Knowledge of Flight Crew Systems
27. Knowledge of Crew Health Care System
28. Knowledge of the use and operation EHS mission displays and scripts
29. Knowledge of the Multipurpose Payload Logistics Module (MPLM) configuration
30. Portable Computer System operations knowledge
31. Timeliner Procedures
32. Operations Data File (ODF) crew procedures knowledge
33. Integrated procedures knowledge
34. Stowage procedures knowledge
35. Knowledge of Lab Support Equipment (LSE) and Payload Support Equipment (PSE)
36. Communications Outage Recorder (COR) operations knowledge
37. High Rate Frame Multiplexer (HRFM) operations knowledge
38. Video Baseband Signal Processor (VBSP) operations knowledge
39. Video Switching Unit (VSU) operations knowledge
40. Switching Control Unit (SCU) operations knowledge
41. Video Tape Recorder (VTR) operations knowledge
42. Automated Payload Switch (APS) operations knowledge
43. Payload Ethernet Gateway Hub (PEGH) operations knowledge
44. Payload Multiplexer Demultiplexer (PL MDM) operations knowledge
45. Fire Detection & suppression knowledge

B. PAYCOM Specific Knowledge

A PAYCOM candidate must have position specific knowledge in the following areas:

1. PIMS operations knowledge, including execute package, Operations Change Request (OCR) processing, email, stowage database, and PODF
2. HOSC Sys (EHS) PAYCOM-specific systems
3. End-To-End communications routing knowledge
4. Knowledge on the use and operation of the A/G S/G Voice Enablement System
5. International Partner interface coordination for console operations
6. Air-to-Ground, Space-to-Ground Voice and communications protocol and techniques
7. Detailed payload knowledge
8. Knowledge of A/G, S/G enablement criteria

IV. Skills

A. Core Skills

A PAYCOM candidate must be skilled in the following tasks:

1. Execution of inter- and intra-team coordination as defined by POIF/ISS procedures and payload regulations.
2. Use of terminology and acronyms on console.
3. Use of voice and communications protocol and techniques.
4. Use and operation of mission displays and scripts.
5. Use of PIMS.
6. Use of the HOSC/EHS systems necessary to perform the PAYCOM console job.

B. PAYCOM-Specific Skills

A PAYCOM candidate must be skilled in the following tasks:

1. Use of the enablement/disablement system.
2. Multitasking, i.e., being able to listen to several conversations while performing tasks simultaneously.
3. Use of A/G and S/G voice and communications protocol and techniques.
4. Reviewing on-board products for safety, compatibility, accuracy, and necessity.
5. Implementing effectively the A/G and S/G enablement/disablement criteria.
6. Interpersonal relationships with the assigned ISS crew.

V. Experience

- A. A PAYCOM candidate must demonstrate the above required skills and knowledge while working in a realtime or simulated mission environment.
- B. A PAYCOM candidate must participate in at least 64 hours of simulations in preparation for their assigned increment. Credit toward the 64 hours may be from previous flight experience and/or On-the-Job Training (OJT) at the PAYCOM console in the POIC.
- C. The PAYCOM candidate shall have been exposed to the crew in their pre-flight training/work environment.

Payload Operations Director (POD)

I. Applicability

This appendix prescribes the requirements for the issuance of Payload Operations Director (POD) certificates and ratings, the conditions under which these ratings will be necessary, and the general operating rules for maintaining certification and proficiency.

II. Eligibility Requirements

To be eligible for ISS Payload Operations Director certificate, a person must:

- A. Exhibit leadership and decision making qualities.
- B. Have experience in payload operations including flight console operations.
- C. Be assigned to the Flight Projects Directorate.
- D. Have a basic understanding of project management and systems engineering processes
- E. Have a basic understanding of NASA and ISS Program organizations and responsibilities.
- F. Read, speak, and understand the English language.
- G. Have good verbal and writing skills.
- H. Have good communications skills.
- I. Requires a NASA Civil Servant with an AST rating, plus a minimum of 6 years experience in space operations. Experience in real-time command and control is highly desirable.

III. Knowledge Requirements

In order for the POD to perform the operations responsibilities with the ISS Program Office, the MCC-H, the International Partners, Partner Control Centers, and other primary interfaces, each person must have demonstrated knowledge of:

- A. ISS Program Office structure, responsibilities, personnel, program documentation, and programmatic guidelines, agreements and requirements.
- B. International partner roles, responsibilities, agreements and protocols.
- C. JOP and MCC-H operations guidelines, flight rules, safety criteria, responsibilities and roles.
- D. MCC-H internal operations procedures and MCC-H to POIC JOIPs.
- E. Overview of ISS components/elements functions, operations constraints and interfaces as related to payload operations.
- F. Training to be certified as member of MCC-H team.
- G. International Partner Payload Control Center (PCC) operations positions, processes, and JOIPs.
- H. Stationwide payload operations safety and hazardous commanding.
- I. POIC operations positions functions, responsibilities, and operations processes.
- J. EHS/PDSS/PPS systems overviews, operations processes, constraints and interfaces.

- K. Knowledge of the remote operations capabilities of the EHS and interfaces to the Telescience Support Center.
 - L. Stationwide operations processes such as planning, commanding, air-to-ground communications, change management, emergency/contingency, documentation, and protocols.
 - M. A general overview of all payloads flying on the increment.
 - N. The payload operations concept.
 - O. Terminology and acronyms.
 - P. Overall schedules.
 - Q. Multicultural customs and conventions.
 - R. Ground networks and air-to-ground communications systems at an overview level.
 - S. Voice protocol, phraseology, and techniques.
 - T. POIC workstation, display system, video system, communications system as related to POD position operations.
 - U. POCB and PODF CB processes and documentation.
 - V. Command and data handling systems at an overview level.
 - W. The inter-relationships of the ground and on-board systems.
 - X. Integrated operations with the MCC-H, PCCs, TSCs, and ISS on-orbit activities.
- IV. Skill Requirements
- Skill requirements are met through hands-on participation, demonstrate the ability to perform all aspects of the POD job, and includes:
- A. Decision making and operations management.
 - B. Execution of Stationwide operations processes, procedures, and protocols.
 - C. Recognition of ISS system anomalies and the potential impacts to payload operations.
 - D. Safety and hazardous commanding management.
 - E. Implementing ISS Program guidelines and operations processes.
 - F. Execution of internal POIC team operations, processes, and interfaces in an operations environment.
 - G. Use of POIC workstation capabilities in an operations environment.
 - H. Air-to-ground and command management.
 - I. Executing International Partner protocols and coordination.
 - J. Stationwide documentation and change management processes.
 - K. Capability to operate in a mission environment.
 - L. Ability to work with people in a stressful environment.
 - M. Ability to successfully execute POIC/SSCC interfaces in an operations environment.

- N. Ability to successfully execute POIC/PCC interfaces in an operations environment.
- V. Experience
 - A. Participation in Bilateral/Multilateral TIMs, POIWGs, JOPs, Change Boards, and other operations related meetings, reviews, and forums.
 - B. Developing operations data and documentation.
 - C. Reviewing and interacting with Stationwide operations documentation.
 - D. Participation in integrated training and simulations.
 - E. Participation in JSC Simulations as agreed upon with DA8/JSC Flight Director.
 - F. Participation in these simulations to include support at JSC and remotely from MSFC.
 - G. Objectives for this simulation support:
 - 1. Familiarity with MCC-H flight documentation, flight control team dynamics, and flight controller interaction;
 - 2. Exercise of anomaly assessment, task prioritization, and overall payload management skills."
 - H. On-the job-training in pre-flight preparation and console operations.

Payload Planning and Scheduling Engineer (PPSE)

I. Applicability

This appendix contains the certification requirements for candidate personnel to work the PPSE Short Term Planning console position in the POIC for the ISS Program.

II. Eligibility Requirements

To be eligible for this position the candidate must:

- A. Read, speak, write and understand the English language.
- B. Have good verbal and written communication skills.
- C. Be proficient in the use of computers and standard desktop applications.
- D. Requires a Bachelor of Science degree in a recognized field of engineering or science or equivalent work experience in space operations planning, real-time spacecraft operations, and/or engineering integration. Two years experience in space operations planning and/or engineering integration experience is desirable, but not mandatory.
- E. Be assigned to the Mission Planning function at MSFC/Flight Projects Directorate.
- F. Have received and reported completion of training activities for the knowledge, skill, and experience areas described in this appendix.

III. Knowledge Requirements

To perform the PPSE responsibilities the candidate must have and maintain up-to-date knowledge of:

- A. Generic and increment-specific Flight Rules, Payload Regulations, Groundrules & Constraints, JOIP, and POH
- B. ISS component configurations, capabilities, and constraints
- C. On-board systems and subsystems capabilities (C&T, PCS, ECLSS...)
- D. Payload, Rack, and Facility operations
- E. Planning software components (PPS)
- F. Data file transfer protocols and procedures
- G. Ground systems applications, displays, and anomaly handling (EHS, PIMS, etc.)
- H. Payload Anomaly recognition and impact assessments
- I. Station-wide Resource planning and partner allocations
- J. Operations Preparation, STP and Realtime Planning process procedures
- K. Planning products formats and generation procedures (IOP/OOS, STP, OSTP, etc.)
- L. Payload complement requirements and constraints (ETOV (ascent & descent), transfer, ISS)
- M. Voice and cultural protocol
- N. POIC Team definition

- O. Applicable Terminology and acronyms
 - P. COTS desktop utility applications (E-mail, MS-Office, etc.)
 - Q. Crew procedures
 - R. Safety Overview
- IV. Certification Skill Requirements
- PPSE candidate must become proficient and maintain up-to-date skills in the following POIC procedures and functions (detailed PPSE functions in TDD).
- A. Coordinate the receipt and delivery of activity requirements and resource envelopes with MCC-H and Partner planners.
 - B. Perform resource distribution and OOS and STP manipulations using the planning software.
 - C. Identifies new or updated payload planning Groundrules and Constraints (Gr&Cs).
 - D. Provide NASA input to Stationwide payload operations plans.
 - E. Coordinate STP development and integration with MCC-H and the Partner planners.
 - F. Integrates element inputs into the payload STP and the payload OOSs.
 - G. Verify Stationwide payload plans and products against payload resource envelopes.
 - H. Coordination with Intra-team interfaces (Realtime Planning and
 - I. Operations Preparation).
- V. Experience and Learning Activities
- The preceding knowledge and skill requirements will be gained through a mix of one or more of the following activities.
- A. Development of mission planning concepts or planning tools.
 - B. Participation in Bilateral/Multilateral TIMs, SPIWGs, ExPCP, and IEPT.
 - C. Developing, reviewing and interacting with Station-wide operations documentation.
 - D. On-the-job training in pre-flight operations preparation and console operations.
 - E. Participation in tabletop reviews, walk-throughs, special studies, or mini-sims, of mission planning processes and procedures.
 - F. Hands-on practice with planning tools, computer hardware and software.
 - G. Successful participation in integrated training and simulations.
 - H. Observing and/or shadowing a certified PPSE executing RT procedures.

Payload Planning Manager (PPM)

I. Applicability

This appendix contains the certification requirements for candidate personnel to work the PPM Short Term Planning console position in the POIC for the ISS program.

II. Eligibility Requirements

To be eligible for this position the candidate must:

- A. Read, speak, write and understand the English language.
- B. Have good verbal and written communication skills.
- C. Be proficient in the use of computers and standard desktop applications.
- D. Requires a Bachelor of Science degree in a recognized field of engineering or science or equivalent work experience in space operations planning, real-time spacecraft operations, and/or engineering integration. Four years experience in space operations planning and/or engineering integration experience is desirable, but not mandatory.
- E. Be assigned to the Mission Planning function at MSFC/Flight Projects Directorate.
- F. Have received and reported completion of training activities for the knowledge, skill, and experience areas prescribed in this appendix.

III. Knowledge Requirements

To perform the PPM responsibilities the candidate must have and maintain up-to-date knowledge of:

- A. Generic and increment-specific Flight Rules, Payload Regulations, Groundrules & Constraints, JOIP, and POH
- B. ISS component configurations, capabilities, and constraints
- C. On-board systems and subsystems capabilities (C&T, PCS, ECLSS...)
- D. Payload, Rack, and Facility operations
- E. Crew procedures
- F. Planning software components (PPS)
- G. Data file transfer protocols and procedures
- H. Ground systems applications, displays, and anomaly handling (EHS, PIMS, etc.)
- I. Payload anomaly recognition and impact assessments
- J. Station-wide Resource planning and partner allocations
- K. Operations Preparation, STP and Realtime Planning process procedures
- L. Planning products formats and generation procedures (IOP/OOS, STP, OSTP, etc.)
- M. Payload complement requirements and constraints (ETOV (ascent & descent), transfer, ISS)
- N. Voice and cultural protocol
- O. POIC Team definition

- P. Applicable terminology and acronyms
- Q. COTS desktop utility applications (E-mail, MS-Office, etc.)
- R. Implementation of On-Board Timeline changes (OCMS OSTP GMT)
- S. Safety Overview

IV. Certification Skill Requirements

PPM candidate must become proficient and maintain up-to-date skills in the following POIC procedures and functions (detailed PPM functions in TDD).

- A. Lead the POIC Short Term Planning cadre and provide planning direction and authority for the Short Term planning process.
- B. Lead the Short Term planning for NASA element payloads.
- C. Lead the IEPT Weekly Planning Conference for payload operations.
- D. Review and approve NASA and station-wide plans and products.
- E. Tracking usage and availability of station-wide resources.
- F. Assessment and processing of Operations Change Requests (OCR).
- G. Evaluation of OCRs against NASA resource availabilities and allocations.
- H. Coordination of timeline and resource distribution changes with the IEPT, users, realtime POIC cadre, and MCC-H.
- I. Coordination with Intra-team interfaces (Realtime Planning and Operations Preparation).

V. Experience and Learning Activities

The preceding knowledge and skill requirements will be gained through a mix of one or more of the following activities.

- A. Development of mission planning concepts or planning tools.
- B. Participation in Bilateral/Multilateral TIMs, SPIWGs, ExPCP, and IEPT.
- C. Developing, reviewing and interacting with Station-wide operations documentation.
- D. On-the-job training in pre-flight operations preparation and console operations.
- E. Participation in tabletop reviews, walk-throughs, special studies, or mini-sims, of mission planning processes and procedures.
- F. Hands-on practice with planning tools, computer hardware and software.
- G. Successful participation in integrated training and simulations.
- H. Observing and/or shadowing a certified PPM executing RT procedures.

Payload Training Integrator (PTI)

I. Applicability

- A. This appendix prescribes the requirements for the issuance of Payload Training Integrator (PTI) certificate, the conditions under which that certificate is necessary, and the general operating rules for persons who holds this certificate.

A PTI may be assigned to an increment prior to certification, but must be certified by Increment minus 24 months.

II. Eligibility requirements: General

To be eligible for a PTI certificate, a person must:

- A. Requires a Bachelor of Science or a Bachelor of Arts degree in engineering, business administration or other appropriate field. Experience in the area of training development or training instruction is desirable, but not mandatory.
- B. Be assigned to the ISS payload training organization at MSFC.
- C. Be able to read, speak, write, and understand the English language.
- D. Meet the training knowledge, skills and experience requirements of that apply are defined in Sections III, IV, and V below.
- E. Complete any additional training requirements as defined by the training plan specifically developed for the trainee.
- F. Successfully pass an evaluation of the training knowledge required to receive the PTI certificate and receive an endorsement from the PTI supervisor.
- G. Receive an endorsement from the PTI Team Lead

III. Knowledge

General. A person who is applying for a PTI certificate must have the following:

- A. General knowledge of ISS
- B. Knowledge of Program Agreements
- C. Knowledge of flight products (PG/A/G/CmdPlan/OSTP, etc.)
- D. Knowledge of Ground Systems (PPS, IOP, PDL, etc.)
- E. Assembly Configuration Knowledge
- F. Knowledge of Overall Schedules (POI/EHS/Sim, etc.)
- G. Knowledge of communications network (Network Orientation)
- H. Knowledge of IP culture and customs
- I. General knowledge of PLSS
- J. Payload Ops Concepts knowledge
- K. Knowledge of POIF team structure per Team Definition Document
- L. Knowledge of POIF Documentation (POIF Doc Tree)

- M. Knowledge of Inter-Team I/F and how to coordinate within the team
 - N. Knowledge of Intra-Team I/F and how to coordinate outside of the team
 - O. Knowledge of the processes defined in the TIP, PTIP, MTMP Vol 1&2, SPIP Vol VII, Training portion of Payload Data Sets Blank Book, and Generic PSRD
 - P. Working knowledge of Payload Training Processes
 - Q. Knowledge of PTI roles and responsibilities
 - R. Knowledge of terminology & acronyms
 - S. General knowledge of PLSS
 - T. General knowledge of Mission Planning Process
 - U. General knowledge of available LSE and PSE
 - V. General knowledge of SSTF/PTC Training capabilities, usage procedures, and regulations
 - W. General knowledge of SSMTF training capabilities, usage procedures, and regulations
 - X. Knowledge of On-Orbit Maintenance
 - Y. Knowledge of Flight Crew Systems
 - Z. Knowledge of the Training Data Set and the purpose of the Payload Data Library
 - AA. General ETOV operations to ISS
 - BB. General MPLM operations.
 - CC. General knowledge of CHeCS
 - DD. General knowledge of EXPRESS Rack and ISPR capabilities
 - EE. General knowledge of PCS operations
 - FF. General knowledge of EHS capabilities
 - GG. General knowledge of uplink/downlink communications systems
 - HH. ISS fire detection and suppression system
 - II. Knowledge of Shuttle crew training processes
- IV. Skills
- The trainee must have the following skills and be prepared to demonstrate those skills to be certified:
- A. The Trainee must have the ability to execute inter and intra team coordination as defined by POIF/ISS procedures.
 - B. The trainee must be able to apply the principles and processes that are the responsibility of the PTI as outlined in the TIP, PTIP, MTMP Vol 1&2, SPIP Vol VII, and the training portion of the Payload Data Sets Blank Book.
 - C. The trainee must be able to use the Payload Data Library to carryout the duties of the PTI.

V. Experience

- A. To receive a PTI certificate, the trainee must be assigned as an assistant to a Certified PTI for a period of 3 months. During this time, the trainee will receive OJT and will be given responsibilities to accelerate learning the necessary skills to become certified.
- B. The certified PTI will make a recommendation as to the readiness of the trainee to be certified.

Payload Instructor Certification Requirements

I. Applicability

This appendix prescribes the certification requirements for an Instructor for a specified payload.

II. Eligibility Requirements

To be eligible as a Payload Instructor candidate, a person must:

- A. Requires a Bachelor of Science or a Bachelor of Arts degree in engineering, education, business administration or other appropriate field or an Associates degree and a minimum of 6 years experience instructing technical subject matter.
- B. Be able to read, speak, write, and understand the English language.
- C. Be assigned to the payload training organization at MSFC/JSC or be designated as an Instructor by the Payload Developer for their specific payload.
- D. Receive documentation or instruction in the knowledge and skills identified below in Sections III and IV.
- E. Meet the training experience requirements of Section V.

III. Knowledge Requirements

- A. The Payload Instructor candidate must be knowledgeable on the subject matter (assigned payload).
- B. The Payload Instructor candidate must be capable of developing an approved lesson plan for their subject matter.
- C. The Payload Instructor candidate must have a general understanding of the following:
 - 1. The training process as defined in the NASA Payload Training Implementation Plan (PTIP)
 - 2. The major stages of the Training Development Process as documented in the Payload Training Developer Guide
 - 3. The capabilities of the Space Station Training Facility (SSTF)/Payload Training Capability which is documented in the Payload Users Development Guide (PUDG) for facility class payloads
 - 4. The training requirements for the assigned payload as documented in the Payload Training Data Set, the Multilateral Increment Training Plan, and the Crew Training Catalog.

IV. Skills

- A. The Payload Instructor candidate must possess good communication and delivery skills in the presentation of the subject matter.
- B. The Payload Instructor candidate must comprehend and effectively use the appropriate instructional method.
- C. The Payload Instructor candidate must comprehend and select the appropriate instructional media to optimize training.

V. Experience

- A. A Payload Instructor candidate from the payload training organization at MFSC/JSC must have successfully completed the Instructor Training Course.
- B. A Payload Instructor candidate assigned by the Payload Developer must have reviewed the Payload Training Developer Guide.
- C. A Payload Instructor candidate must demonstrate the above required skills and knowledge through the successful execution of a Payload Training Dry Run (PTDR).

PHoto ANd Television Operations Manager (PHANTOM) Certification Requirements

I. Applicability

This document describes the requirements for the issuance of the Photo and Television Operations Manager (PHANTOM) certificate.

II. Eligibility Requirements

To be eligible for a PHANTOM certificate, a person must:

- A. Requires a technical school certificate or Associates degree in communications or industrial photography and/or video, or 2 years related or equivalent education and experience. Work experience in space operations, real-time spacecraft operations, and/or real-time command and control is highly desirable.
- B. Be assigned to the ISS Data Management organization at MSFC.
- C. Be able to read, speak, write, and understand the English language.
- D. Receive an endorsement from the Increment Lead POD and PLSS Systems Group Lead.
- E. Receive instruction in the knowledge identified in "Core Knowledge" section.
- F. Receive instruction in the skills identified in the "Core Skills" section.
- G. Meet the video operations experience requirements listed in Section V.
- H. A PHANTOM candidate must successfully complete an evaluation by their supervisor.

III. Knowledge Requirements

A. PHANTOM Core Knowledge

Core Knowledge defines those areas that are basic to staffing a console position. The areas listed below are the core knowledge requirements for the PHANTOM position.

- 1. ISS Program agreements (Systems-Payloads, Partner-Partner, ISS-payloads)
- 2. ISS concepts, terminology, and acronyms
- 3. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- 4. POI Documentation Tree
- 5. Payload Operations Concept
- 6. ISS elements capabilities, interfaces, and configurations
- 7. PIMS (including OCRs, E-mail)
- 8. EHS
- 9. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- 10. General payload knowledge (i.e., video fps, location, etc.)
- 11. EXPRESS Rack operations (related to video generation/transmission)
- 12. Ground systems (i.e., PDL, iURC/URC)
- 13. General ETOV operations
- 14. General Commanding
- 15. Payload Complement Definition
- 16. International Partner protocol
- 17. Communications Networks
- 18. Voice and Communications Protocol

19. Inter-team interfaces
20. Intra-team interfaces
21. Planning concepts
22. Flight Crew Systems
23. Use of EHS mission displays and scripts
24. MPLM configuration
25. TIMELINER Procedures
26. PODF crew procedures
27. EHS Database

B. PHANTOM Specific Knowledge

Specific Knowledge defines those areas of knowledge that are specific to the PHANTOM position. The PHANTOM must be trained in each of these areas in order to have the knowledge foundation upon which simulation participation and OJT are based.

1. VBSP Operation
2. VSU Operation
3. HRFM Operation
4. VTR Operation
5. SCU Operation
6. Video Camera/Camcorder Operation
7. Electronic Still Camera Operation
8. Video System Crew Procedures
9. Video Signal processing
10. "VIDEO OPS" Console Tool Operation, comps, and scripts
11. Video System Health & Status data
12. Time-Tag Commanding
13. Video system commanding
14. Video System Autoroute
15. Video system anomaly identification, work-around, and resolution
16. Video System ground command procedures
17. Video System interfaces with MCC-H
18. Video System interfaces with International Partners
19. Operational interfaces with payload users related to video
20. Onboard Video System connectivity
21. Ground Video interfaces between MCC-H and POIC
22. ISPR-payload video connectivity
23. External Facility-payload video connectivity
24. External Video Switches
25. NASDA/JEM video system and US Lab interfaces & connectivity
26. ESA/COF video system and US Lab interfaces & connectivity
27. Data Flow Plan (DFP) development, format, and contents
28. OCA video operations
29. Data Management Team Concept of Operations
30. Video Operations Concept
31. Digital Imagery Management System (DIMS)

IV. Skills

A. PHANTOM Core Skills

1. A PHANTOM candidate must have excellent written and verbal communication skills.

2. A PHANTOM candidate must have the ability to lead inter- and intra-team coordination.
3. A PHANTOM candidate must have the ability to use appropriate terminology and acronyms.
4. A PHANTOM candidate must be skilled in general console operations.
5. A PHANTOM candidate must be skilled in the use of communications protocol.
6. A PHANTOM candidate must be skilled in using displays, scripts, and console tools.
7. A PHANTOM candidate must be skilled in the use of PIMS.
8. A PHANTOM candidate must be skilled in the use of the EHS systems necessary to perform the console job.
9. A PHANTOM candidate must be skilled in using a Personal Computer.

B. PHANTOM Specific Skills

1. A PHANTOM candidate must be skilled in reading and interpreting the Data Flow Plan (DFP).
2. A PHANTOM candidate must be skilled in recognizing video system anomalies (includes VBSP, VSU, VTR, etc.)
3. A PHANTOM candidate must be skilled at coordinating and implementing realtime changes that affect the on-board video system configurations.
4. A PHANTOM candidate must be skilled in issuing commands to the on-board video system.
5. A PHANTOM candidate must be skilled in using the "VIDEO OPS" console tool for commanding and receiving telemetry.
6. A PHANTOM candidate must be skilled in using the ISS Antenna Management (IAM) display.
7. A PHANTOM candidate must be skilled in determining downlink video signal quality.

V. Experience

- A. A PHANTOM candidate must demonstrate the above required skills and knowledge while working in a realtime or simulated mission environment.

B. Simulations

1. A PHANTOM candidate must participate in at least 64 hours of simulations in preparation for their assigned increment.

C. Previous space mission experience:

1. A PHANTOM candidate may be credited up to 32 hours of the required simulation experience if they have mission experience as a Spacelab TV OPS.
2. An experienced ISS PHANTOM must participate in at least 24 hours of simulations to be re-certified for a new increment.

D. On-the Job Training (OJT)

A PHANTOM candidate will develop the skills required for the PHANTOM position by assisting with console duties under the supervision of a certified PHANTOM. A PHANTOM candidate is required to perform at least 32 hours of OJT.

Payload Operations Data File (PODF) Support Certification Requirements

I. Applicability

This appendix defines the requirements for the issuance of the PODF Support (PODF) certificate.

II. PODF Certificate Eligibility Requirements

To be eligible for a PODF certificate, a person must:

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science or a high school graduate with 4 years of technical work experience in human computer interface development, technical writing/publications, space operations, human engineering, or computer science.
- B. Proficient in using a personal computer with demonstrated ability to learn computer applications.
- C. Be able to read, speak, write, and understand the English language.
- D. Successfully demonstrate the knowledge and skills required in Section III and IV.
- E. Meet the training experience requirements of Section V.
- F. Receive endorsement from the FD33/ Procedures and Displays Team Lead.
- G. Receive certification from the FD33/ Payload Systems Group Lead.

III. PODF Knowledge Requirements

A. PODF Core Knowledge

The PODF certificate ensures that the basic skills and knowledge required to carry out the PODF position in support of a flight have been gained. The Level 1 certificate holder must have the following core knowledge:

- 1. Roles and Responsibilities of the POIC
- 2. Top Level Space Station Assembly Configuration
- 3. Overview of the US Laboratory Element
- 4. Top Level Payload Interfaces to the US Laboratory
- 5. Increment Specific Payloads, their class, configuration, and command and control methods
- 6. Knowledge of POIC team structure
- 7. Knowledge of PODF position interfaces and how to carry out console tasks
- 8. Knowledge of On-board Crew Interfaces (e.g., Ops LAN, SSC, PCS, PL Laptops, etc.)
- 9. EHS Console Equipment Operations
- 10. PIMS – Operations Change Request (OCR) Process
- 11. EHS OCA Node

B. PODF Specific Knowledge

The PODF certificate holder must have the following position specific knowledge:

- 1. Microsoft Office Suite Operations
- 2. OPMS

3. ODF Standards
4. ODF Operations Nomenclature
5. Increment Specific ODF Structure and Contents.
6. Manual Procedure Viewer Operations (Viewer, Multi-administration, Procedure Management for Client/Server)
7. Adobe Acrobat, file transfer protocol (ftp) and WINZIP
8. Payload Specific safety requirements
9. Knowledge of Planning products as related to manual procedure scheduling
10. Knowledge of Flight Rules which pertain to procedures and operations

IV. PODF Skills Requirements

A. PODF Core Skills

The PODF certificate holder must have the following core skills:

1. Execute inter-and intra-team coordination as defined by POIF/ISS procedures.
2. Use terminology and acronyms on console.
3. Use of voice and communications protocol techniques.
4. Use the console administration PC.
5. Use PIMS for OCR processing.
6. Use the EHS console.

B. PODF Specific Skills

The PODF certificate holder must have the following specific skills:

1. Determine manual procedure compliance with ODF standards
2. Determine manual procedure compliance with ISS Operations Nomenclature
3. Convert manual procedures from native format to portable document format (PDF)
4. Creating crew notes for use with MPV
5. Build MPV library
6. Add links to MPV files
7. Build MPV procedure management zip file
8. Move files to PIMS drop box by using FTP
9. Copy file to tape media for transfer to EHS MPV server
10. Editing and modifying manual procedure documents using Microsoft Word
11. Creating and modifying EXCEL Spreadsheets

V. PODF Experience

- A. The PODF certificate holder must demonstrate the above required skills and knowledge while working in a real time or simulated mission environment.
- B. A PODF certificate holder must successfully participate in 40 hours of mission simulation serving in the PODF position or work on console with a certified PODF operator for 160 hours. Forty of these hours must be served as prime operator under observation.
- C. A PODF certificate holder who has not worked console in over 6 months but less than 1 year must participate in 8 hours of observed mission or simulation support to be re certified.
- D. A PODF certificate holder who has not worked console in over 12 months must participate in 24 hours of observed mission or simulation support to be re certified.
- E. Refresher training on core and specific knowledge is required every 24 months to maintain PODF certification.

POIC Safety

I. Applicability

This appendix prescribes the requirements for the issuance of POIC Safety certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules for persons who hold those certificates and ratings.

II. Eligibility Requirements

To be eligible for a POIC Safety certificate, a person must:

- A. Requires a Bachelor of Science or Bachelor of Arts degree in a recognized field of engineering or equivalent and approximately 2 years professional experience in engineering safety or a non-technical degree plus a minimum of 5 years experience in the engineering safety environment.
- B. Have successfully completed all required training for subject position as defined in the ISS Training Plan.
- C. Be able to read, speak, write, and understand the English language.

III. Knowledge Requirements

Applicant must demonstrate knowledge in the following areas:

- A. Thorough understanding of NSTS 1700.7B payload safety requirements, including Interpretation Letters.
- B. A general overview of all payloads flying on the increment, including knowledge of all payload hazard controls.
- C. Detailed knowledge on all payload operational hazards and associated controls.
- D. Understanding of payload safety roles and responsibilities for all ground support teams and participants (e.g., POIC, MCC-H, PCCs, TSCs, remote users) POH procedures involving payload safety.
- E. JOIPs associated with payload safety between POIC, PCCs, and MCC-H.
- F. ISS terminology and acronyms.
- G. EHS workstation, display system, video system, communications system as related to POIC position operations.

IV. Skill Requirements

Skill requirements are met through hands-on participation and include:

- A. Ability to perform safety assessments in a time-critical environment, applying NASA safety requirements defined in NSTS 1700.7B and the Interpretation Letters.
- B. Ability to coordinate and lead a team (including personnel at remote sites) of technical experts in assessing and proposing recommendations for payload safety issues that arise on-orbit.
- C. Use of EHS workstation capabilities in an operations environment.

- D. Ability to execute various personal computer software packages (e.g., FileMaker Pro, Microsoft Word, Netscape, etc...) and to manipulate data and files relating to payload hazard controls.
- V. Experience Requirements
 - A. Participation in payload safety data pack reviews and PSRP meetings.
 - B. Participation in Independent Safety Verification Reviews (ISVR).
 - C. Participation in development of Payload Hazard Control Matrices.
 - D. Participation in integrated training and simulations.
- VI. Currency Requirements

To maintain currency a person must work one increment a year or fully participate in four simulations within a year.

POIC Stowage Certification Requirements

I. Applicability

This appendix contains the certification requirements for the POIC Stowage position.

II. Eligibility Requirements

- A. Requires a Bachelor of Science or a Bachelor of Arts degree in engineering, or other appropriate field or 5 years professional experience in aerospace operations or 10 years professional experience in related/applicable environment.
- B. Be able to read, speak, write, and understand the English language.
- C. Have successfully completed all required training for subject position as defined in the ISS Training Plan.

III. Knowledge Requirements

- A. Extensive knowledge of stowage and inventory requirements in:
 - 1. SPIP Vol. 8, Section 15
 - 2. SPIP Vol. 9, Section 15
 - 3. SSP 50427, On-Orbit Inventory Stowage Implementation Plan; Payload Operations Handbook
 - 4. Joint Operations Interface Procedures (POIC/PCC & POIC/SSCC)
 - 5. SSP 58303, Team Definition Document
 - 6. POIF-OC-0008, Payload Stowage Operations Manual
- B. Working knowledge of
 - 1. Inventory management products located on the Increment Operations Plan web page and the Configuration Data Set portion of the Payload Data Library (PDL)
 - 2. MCC-H Inventory Stowage Officer functions and interface with POIC Stowage
- C. General knowledge of:
 - 1. Interfaces between the PDL; Consolidated Maintenance, Inventory, Logistics Planning (CMILP) System; Cargoflow, Maintenance, Inventory (CMI) System; Inventory Management System (IMS); and Vehicle Master Database (VMDB) ground systems and the flow of stowage and inventory data through these systems
 - 2. POIC cadre position functions
- D. Knowledge of Partner Control Center functions and interfaces with the POIC

IV. Skill Requirements (be proficient at)

- A. Accessing/interpreting inventory management reports in CMILP and on IOP web page
- B. Operating Comm Set/VS and using proper voice protocol
- C. Use of POIC workstation capabilities in an operations environment
- D. Demonstrate knowledge of proper position to contact when responding to inventory/stowage scenarios

V. Currency Requirements

To maintain currency a person must work one increment a year or fully participate in four simulations within a year.

Payload Rack Officer/Payload Systems Engineer (PRO/PSE)

I. Applicability

This appendix contains the certification requirements for the PRO/PSE.

II. Eligibility Requirements

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science; 2 years experience in space operations and/or engineering integration experience is desirable, but not mandatory. Non-technical degree or Associates degree requires a minimum of 5 years directly applicable work experience in space operations, real-time spacecraft operations, and/or engineering integration, and will be considered on a case-by-case basis. Experience in real-time command and control is highly desirable.
- B. Read, speak, write, and understand the English language
- C. Skilled in written and verbal communication
- D. Skilled in using Personal Computer
- E. POIF Operations Control Team Member

III. Core Knowledge

- A. ISS concepts, terminology, and acronyms
- B. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- C. POI Documentation Tree
- D. Payload Operations Concept
- E. ISS elements capabilities, interfaces, and configurations
- F. PIMS (including OCRs, E-mail)
- G. HOSC systems, software and interfaces
- H. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- I. General payload knowledge (subsystems used, rack location, etc)
- J. EXPRESS Rack operations
- K. Ground systems (i.e., PPS, IOP, PDL)
- L. General ETOV operations
- M. Payload Complement Definition
- N. International Partner protocol
- O. Voice and Communications Protocol
- P. PLSS
- Q. Inter-team interfaces
- R. Intra-team interfaces
- S. Planning concepts

- T. Flight Crew Systems
 - U. Use of EHS mission displays and scripts
 - V. Manual Procedures Development
 - W. TIMELINER Procedures
 - X. Selected ODF crew procedures
- IV. Specific Knowledge
- A. PRO/PSE must have general knowledge of the ISS and its subsystems (C&DH, C&T, TCS, EPS, ECLSS), PLMDM (limit exception monitor configuration, payload messaging/messages, Health and Status telemetry), knowledge of the TReK workstation capabilities and payload objectives, and configuration for payloads during the time period of certification.
 - B. PRO/PSE must have knowledge of the operational impacts of system components and failures affecting payloads. This knowledge includes Payload Support Systems, JEM Element PSS, COF Element PSS, payload interfaces to the systems in the NASA element, JEM and COF, EXPRESS Rack and Pallet subsystems, and the payload interfaces to EXPRESS rack and pallet.
 - C. PRO/PSE must have knowledge of OSTP generation, updates and expectations.
 - D. PRO/PSE must have knowledge of required MCC-H, IP and Payload Developer control center positions and interfaces.
 - E. PRO/PSE must have extensive knowledge of the payload safety concerns for payloads in the NASA element.
 - F. PRO/PSE must have knowledge of ETOV operations and the installation and checkout of racks and subrack payloads. (Includes MPLM, Middeck, etc.).
 - G. PRO/PSE must have knowledge of automated and manual procedures.
- V. Core Skills
- A. Operating EHS software
 - B. On console operations including voice protocol, OCR process, shift reports, handovers, maintaining console logs and POIC facility usage
- VI. Specific Skills
- PRO/PSE must be proficient at:
- A. Organizing and leading a team of skilled professionals in the preparation for and execution of payload operations
 - B. Operating OCMS software
 - C. Operating expert systems and other tools
 - D. Reading and interpreting schematics
 - E. Troubleshooting systems and payloads to systems interfaces

- F. Interpreting telemetry and analyzing trends
- G. Performing ground procedures for safety, payload safing and PLSS configuration

VII. Experience

PRO/PSE must have the following experience:

- A. Minimum of 40 hours of OJT in an observer/assistant role (this includes on shift of rack installation and checkout activities.) (requirement effective after first month of realtime support)
- B. Minimum of 40 hours of OJT as prime operator with a certified (position and increment) person to oversee all operations (requirement effective after first month of real time support)
- C. Minimum of 40 hours of on-console operations via simulations and OJT (requirement effective after first month of realtime support)
- D. NOTE: Previous operations experience may be substituted for OJT, as management deems appropriate and relevant.
- E. Minimum of 9 hours of system operations time on a simulator (this includes EXPRESS standalone, PLSS standalone and combined PLSS/EXPRESS).

VIII. Currency Requirements

For continued active console duties, the currency requirements are:

- A. Familiarity of any operations notes for system changes
- B. Refresher training on any course updates

If the certified person has been away from console duties for 6 months or more, the currency requirements are:

- A. ISS Documentation refresher
- B. POI Documentation refresher
- C. ISS element's capabilities, interfaces, and configurations
- D. Familiarity with changes to the ISS systems.
- E. Familiarity with changes to ISS payloads
- F. Familiarity with changes to ISS Program
- G. 8 hours OJT of on-console operations, including voice protocol, OCR processing, Shift Reports, handovers, logging, and POIC facility utilization.

Systems Configuration Manager (SCM)

I. Applicability

This appendix contains the certification requirements for the SCM.

II. Eligibility Requirements

- A. Requires a Bachelor of Science or Bachelor of Arts degree in a recognized field of engineering or equivalent and approximately 2 years professional experience in engineering safety or a non-technical degree plus a minimum of 5 years experience in the engineering safety environment.
- B. Read, speak, write, and understand the English language
- C. Skilled in written and verbal communication
- D. Skilled in using Personal Computer
- E. POIF Operations Control Team Member

III. Core Knowledge

- A. ISS concepts, terminology, and acronyms
- B. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- C. POI Documentation Tree
- D. Payload Operations Concept
- E. ISS elements capabilities, interfaces, and configurations
- F. PIMS (including OCRs, E-mail)
- G. HOSC systems, software and interfaces
- H. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- I. General payload knowledge (subsystems used, rack location, etc.)
- J. Ground systems (i.e., PPS, IOP, PDL)
- K. Payload Complement Definition
- L. International Partner protocol
- M. Voice and Communications Protocol
- N. PLSS
- O. Inter-team interfaces
- P. Intra-team interfaces
- Q. Planning concepts
- R. Flight Crew Systems
- S. Use of EHS mission displays and scripts
- T. Manual Procedures Development

- U. TIMELINER Procedures
 - V. Selected ODF crew procedures
- IV. Specific Knowledge
- A. SCM must have general knowledge of the ISS and its subsystems (C&DH, C&T, TCS, EPS, ECLSS), PLMDM (limit exception monitor configuration, payload messaging/messages, Health and Status telemetry), knowledge of the TReK workstation capabilities and payload objectives, and configuration for payloads during the time period of certification.
 - B. SCM must have knowledge of the operational impacts of system components and failures affecting payloads. This knowledge includes Payload Support Systems, JEM Element PSS, COF Element PSS, payload interfaces to the systems in the NASA element, JEM and COF, EXPRESS Rack and Pallet subsystems, and the payload interfaces to EXPRESS rack and pallet.
 - C. SCM must have knowledge of OSTP generation, updates and expectations.
 - D. SCM must have knowledge of required MCC-H, IP and Payload Developer control center positions and interfaces.
 - E. SCM must have extensive knowledge of the payload safety concerns for payloads in the NASA element.
 - F. SCM must have knowledge of ETOV operations and the installation and checkout of racks and subrack payloads. (Includes MPLM, Middeck, etc.)
 - G. SCM must have knowledge of automated and manual procedures.
- V. Core Skills
- A. Operating EHS software
 - B. On console operations including voice protocol, OCR process, shift reports, handovers, maintaining console logs and POIC facility usage
- VI. Specific Skills
- SCM must be proficient at:
- A. Organizing and leading a team of skilled professionals in the preparation for and execution of payload operations
 - B. Operating OCMS software
 - C. Operating expert systems and other tools
 - D. Reading and interpreting schematics
 - E. Troubleshooting systems and payloads to systems interfaces
 - F. Interpreting telemetry and analyzing trends
 - G. Performing ground procedures for safety, payload safing, and PLSS configuration
- VII. Experience

An SCM must have the following experience:

- A. Minimum of 40 hours of OJT in an observer/assistant role (this includes on shift of rack installation and checkout activities.) (requirement effective after first month of realtime support)
- B. Minimum of 40 hours of OJT as prime operator with a certified (position and increment) person to oversee all operations (requirement effective after first month of realtime support)
- C. Minimum of 40 hours of on-console operations via simulations and OJT (requirement effective after first month of realtime support)
- D. NOTE: Previous operations experience may be substituted for OJT, as management deems appropriate and relevant.

VIII. Currency Requirements

For continued active console duties, the currency requirements are:

- A. Familiarity of any operations notes for system changes
- B. Refresher training on any course updates

If the certified person has been away from console duties for 6 months or more, the currency requirements are:

- A. ISS Documentation refresher
- B. POI Documentation refresher
- C. ISS element's capabilities, interfaces, and configurations
- D. Familiarity with changes to the ISS systems.
- E. Familiarity with changes to ISS payloads
- F. Familiarity with changes to ISS Program
- G. 8 hours OJT of on-console operations, including voice protocol, OCR processing, Shift Reports, handovers, logging, and POIC facility utilization.

Shuttle Operations Coordinator (SOC)

I. Applicability

This appendix contains the certification requirements for the SOC.

II. Eligibility Requirements

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science, plus a minimum of 2 years concentrated experience in specialty area, or a non-technical degree with 10 years experience in an aerospace engineering environment. Experience in real-time command and control is highly desirable.
- B. Read, speak, write, and understand the English language
- C. Skilled in written and verbal communication
- D. Skilled in using Personal Computer
- E. POIF Operations Control Team Member

III. Core Knowledge

- A. ISS concepts, terminology, and acronyms
- B. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- C. POI Documentation Tree
- D. Payload Operations Concept
- E. ISS elements capabilities, interfaces, and configurations
- F. PIMS (including OCRs, E-mail)
- G. HOSC systems, software and interfaces
- H. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- I. General payload knowledge (subsystems used, rack location, etc.)
- J. EXPRESS Rack operations
- K. Ground systems (i.e., PPS, IOP, PDL)
- L. General ETOV operations
- M. Payload Complement Definition
- N. International Partner protocol
- O. Voice and Communications Protocol
- P. Inter-team interfaces
- Q. Intra-team interfaces
- R. Planning concepts
- S. Flight Crew Systems
- T. Use of EHS mission displays and scripts

- U. Manual Procedures Development
 - V. Selected ODF crew procedures
- IV. Specific Knowledge
- A. A SOC must have knowledge of ETOV (Shuttle) payload accommodations and services. This includes knowledge of mid-deck locker and MPLM facilities and services.
 - B. A SOC must have knowledge of operational interfaces for ETOV services. For Shuttle to Station the SOC must have knowledge of the ACO position.
 - C. A SOC must have knowledge of each ISS ETOV manifest and the manifested payloads pre-launch, ascent, on-orbit, and transfer requirements, constraints, operations and contingencies.
- V. Core Skills
- A. Operating EHS software
 - B. On console operations including voice protocol, OCR process, shift reports, handovers, maintaining console logs and POIC facility usage
- VI. Specific Skills
- SOC must be proficient at:
- A. Building and issuing commands
 - B. Reading and interpreting schematics
 - C. Troubleshooting systems and subsystems
 - D. Interpreting telemetry and analyzing trends
 - E. Performing ground procedures for safety, payload safing
 - F. Flight Note Generation
- VII. Experience
- A SOC must have the following experience:
- A. Minimum of 40 hours of OJT in an observer/assistant role (this includes on shift of rack installation and checkout activities.) (requirement effective after first month of realtime support)
 - B. Minimum of 40 hours of OJT as prime operator with a certified (position and increment) person to oversee all operations (requirement effective after first month of realtime support)
 - C. Minimum of 40 hours of on-console operations via simulations and OJT (requirement effective after first month of realtime support)
 - D. NOTE: Previous operations experience may be substituted for OJT, as management deems appropriate and relevant.
- VIII. Currency Requirements

For continued active console duties, the currency requirements are:

- A. Familiarity of any operations notes for system changes
- B. Refresher training on any course updates

If the certified person has been away from console duties for 6 months or more, the currency requirements are:

- A. ISS Documentation refresher
- B. POI Documentation refresher
- C. ETOV capabilities, interfaces, and configurations
- D. Familiarity with changes to ISS payloads
- E. 8 hours OJT of on-console operations, including voice protocol, OCR processing, Shift Reports, handovers, logging, and POIC facility utilization.

Timeline Change Officer (TCO)

I. Applicability

This appendix contains the certification requirements for candidate personnel to work the TCO Short Term Planning console position in the POIC for the ISS program.

II. Eligibility Requirements

To be eligible for this position the candidate must:

- A. Read, speak, write and understand the English language.
- B. Have good verbal and written communication skills.
- C. Be proficient in the use of computers and standard desktop applications.
- D. Requires a Bachelor of Science degree in a recognized field of engineering or science or equivalent work experience in space operations planning, real-time spacecraft operations, and/or engineering integration. Four years experience in space operations planning, real-time spacecraft operations, and/or engineering integration experience is desirable but not mandatory.
- E. Be assigned to the Mission Planning function at MSFC/Flight Projects Directorate.
- F. Have received and reported completion of training activities for the knowledge, skill, and experience areas described in this appendix.

III. Knowledge Requirements

To perform the TCO responsibilities the candidate must have and maintain up-to-date knowledge of:

- A. Generic and increment-specific Flight Rules, Payload Regulations, Groundrules & Constraints, JOIP, and POH
- B. ISS component configurations, capabilities, and constraints
- C. On-board systems and subsystems capabilities (C&T, PCS, ECLSS...)
- D. Payload, Rack, and Facility operations
- E. Planning software components (PPS)
- F. Data file transfer protocols and procedures
- G. Ground systems applications, displays, and anomaly handling (EHS, PIMS, etc.)
- H. Payload Anomaly recognition and impact assessments
- I. Station-wide Resource planning and partner allocations
- J. Operations Preparation, STP and Realtime Planning process procedures
- K. Planning products formats and generation procedures (IOP/OOS, STP, OSTP, etc.)
- L. Payload complement requirements and constraints (ETOV (ascent & descent), transfer, ISS)
- M. Voice and cultural protocol

- N. POIC Team definition
 - O. Applicable terminology and acronyms
 - P. COTS desktop utility applications (E-mail, MS-Office, etc.)
 - Q. Crew procedures
 - R. Safety Overview
 - S. Payload Inventory Management and Stowage Processes
- IV. Certification Skill Requirements
- TCO Candidate must become proficient and maintain up-to-date skills in the following POIC procedures and functions (detailed TCO functions in TDD).
- A. Coordinate the receipt and delivery of activity requirements and resource envelopes with MCC-H and Partner planners.
 - B. Perform resource distribution and OOS and STP manipulations using the planning software.
 - C. Identifies new or updated payload planning Groundrules and Constraints (Gr&Cs).
 - D. Provide NASA input to Stationwide payload operations plans.
 - E. Coordinate STP development and integration with MCC-H and the Partner planners.
 - F. Integrates element inputs into the payload STP and the payload OOSs.
 - G. Verify Stationwide payload plans and products against payload resource envelopes.
 - H. Coordination with intra-team interfaces (Short Term Planning and Operations Preparation).
 - I. Editing and uplink of payload activities on the On-Board Short Term Plan (OSTP)
 - J. Implementation of On-Board Timeline changes (OCMS OSTP GMT)
- V. Experience and Learning Activities
- The preceding knowledge and skill requirements will be gained through a mix of one or more of the following activities.
- A. Development of mission planning concepts or planning tools.
 - B. Participation in Bilateral/Multilateral TIMs, SPIWGs, ExPCP, and IEPT.
 - C. Developing, reviewing and interacting with Station-wide operations documentation.
 - D. On-the-job training in pre-flight operations preparation and console operations.
 - E. Participation in tabletop reviews, walk-throughs, special studies, or mini-sims, of mission planning processes and procedures.
 - F. Hands-on practice with planning tools, computer hardware and software.
 - G. Successful participation in integrated training and simulations.
 - H. Observing and/or shadowing a certified TCO executing RT procedures.

Timeline Maintenance Manager (TMM)

I. Applicability

This appendix contains the certification requirements for candidate personnel to work the TMM Real-time console position in the POIC for the ISS program.

II. Eligibility Requirements

To be eligible for this position the candidate must:

- A. Read, speak, write and understand the English language.
- B. Have good verbal and written communication skills.
- C. Be proficient in the use of computers and standard desktop applications.
- D. Requires a Bachelor of Science degree in a recognized field of engineering or science or equivalent work experience in space operations planning, real-time spacecraft operations, and/or engineering integration. Four years experience in space operations planning and/or engineering integration experience is desirable, but not mandatory.
- E. Be assigned to the Mission Planning function at MSFC/Flight Projects Directorate.
- F. Have received and reported completion of training activities for the knowledge, skill, and experience areas described in this appendix.

III. Knowledge Requirements

To perform the TMM responsibilities the candidate must have and maintain up-to-date knowledge of:

- A. Generic and increment-specific Flight Rules, Payload Regulations, Groundrules & Constraints, JOIP, and POH
- B. ISS component configurations, capabilities, and constraints
- C. On-board systems and subsystems capabilities (C&T, PCS, ECLSS...)
- D. Payload, Rack, and Facility operations
- E. Planning software components (PPS)
- F. Data file transfer protocols and procedures
- G. Crew procedures
- H. Ground systems applications, displays, and anomaly handling (EHS, PIMS, etc.)
- I. Payload Anomaly recognition and impact assessments
- J. Stationwide Resource planning and partner allocations
- K. STP Planning process procedures
- L. Planning products formats and generation procedures (IOP/OOS, STP, OSTP, etc.)
- M. Payload complement requirements and constraints (ETOV (ascent & descent), transfer, ISS)
- N. Voice and cultural protocol

- O. POIC Team definition
- P. Applicable terminology and acronyms
- Q. COTS desktop utility applications (E-mail, MS-Office, etc.)
- R. Implementation of On-Board Timeline changes (OCMS OSTP GMT)
- S. Safety Overview

IV. Certification Skill Requirements

TMM Candidate must become proficient and maintain up-to-date skills in the following POIC procedures and functions (detailed TMM functions in TDD).

- A. Monitoring station-wide payload operations.
- B. Tracking usage and availability of Stationwide resources.
- C. Coordination of payload operations, available resources and consumables, system configurations, and payload hardware with POIC cadre.
- D. Assessment and processing of Operations Change Requests (OCR).
- E. Evaluation of OCRs against station-wide resource availabilities and allocations.
- F. Update and maintain the payload portions of the STP.
- G. Coordination of timeline updates with the MCC-H, PCCs and users.
- H. Ensure payload portion of OSTP is consistent with latest STP.
- I. Editing and uplink of payload activities in the On-Board Short Term Plan (OSTP).
- J. Coordination with Intra-team interfaces (Short Term Planning and Operations Preparation).

V. Experience and Learning Activities

The preceding knowledge and skill requirements will be gained through a mix of one or more of the following activities.

- A. Development of mission planning concepts or planning tools.
- B. Participation in Bilateral/Multilateral TIMs, SPIWGs, ExPCP, and IEPT.
- C. Developing, reviewing and interacting with Station-wide operations documentation.
- D. On-the-job training in pre-flight operations preparation and console operations.
- E. Participation in tabletop reviews, walk-throughs, special studies, or mini-sims, of mission planning processes and procedures.
- F. Hands-on practice with planning tools, computer hardware and software.
- G. Successful participation in integrated training and simulations.
- H. Observing and/or shadowing a certified TMM executing RT procedures.

Weekly Implementor of Systems And Resources for Data (WISARD) Certification Requirements

I. Applicability

This document describes the requirements for the issuance Weekly Implementor of Systems and Resources for Data (WISARD) certificate.

II. Eligibility Requirements

To be eligible for a WISARD certificate, a person must:

- A. Requires a Bachelor of Science degree in a recognized field of engineering or science. Non-technical degree or Associates degree requires a minimum of 2 years directly applicable work experience in space operations, realtime spacecraft operations, and/or engineering integration and will be considered on a case-by-case basis. Experience in planning or timeline development is highly desired.
- B. Be assigned to the ISS Data Management organization at MSFC
- C. Be able to read, speak, write, and understand the English language
- D. Receive an endorsement from the increment POD and PLSS Systems Group Lead
- E. Receive instruction in the knowledge identified in “Core Knowledge” section
- F. Receive instruction in the skills identified in the “Core Skills” section
- G. A WISARD candidate must be skilled in using a Personal Computer.
- H. A WISARD candidate must have excellent written and verbal communication skills.
- I. Meet the data management experience requirements listed in Section V.
- J. A WISARD candidate must successfully complete an evaluation by their supervisor.

III. Knowledge Requirements

A. WISARD Core Knowledge

Core Knowledge defines those areas that are basic to staffing a console position. The areas listed below are the core knowledge requirements for the WISARD position.

- 1. ISS Program agreements (Systems-Payloads, Partner-Partner, ISS-payloads)
- 2. ISS concepts, terminology, and acronyms
- 3. ISS Documentation (i.e., POH, JOIP, P/L Regulations, Flight Rules, TDD)
- 4. POI documentation Tree
- 5. Payload Operations Concept
- 6. ISS elements capabilities, interfaces, and configurations
- 7. PIMS (including OCRs, email)
- 8. Flight products (i.e., Product Generation (PG) outputs, OSTP)
- 9. General payload knowledge (i.e., data rates, location, etc.)
- 10. EXPRESS Rack operations (related to data and video generation/transmission)
- 11. Ground systems (i.e., PPS, IOP)
- 12. Payload Complement Definition
- 13. International Partner protocol

14. Communications Networks
15. Inter-team interfaces
16. Intra-team interfaces

B. WISARD Specific Knowledge

Specific Knowledge defines those areas of knowledge that are specific to the WISARD position. The WISARD must be trained in each of these areas in order to have the knowledge foundation upon which simulation participation and OJT are based.

1. PLMDM Capabilities
2. MIL-STD-1553B Bus Capabilities
3. HRFM Capabilities
4. APS Capabilities
5. PEHG Capabilities
6. VBSP Capabilities
7. VSU Capabilities
8. VTR Capabilities
9. General Ethernet Capabilities
10. MCOR/HCOR Capabilities
11. Ops LAN operations
12. DM Planning interfaces within Short Term Planning Team
13. DM Planning interfaces with payload users
14. DM Planning interfaces with International Partners
15. End-to-End Data System connectivity
16. EXPRESS Rack data/video capabilities
17. ISPR-payload data connectivity
18. External Facility-payload data connectivity
19. NASDA/JEM data system and US Lab connectivity
20. ESA/COF data system and US Lab connectivity
21. PDSS
22. TDRSS Scheduling and Coordination
23. iURC/URC
24. Payload requirements (i.e., data rates, video, rack location, etc.)
25. Data Systems Routing & Configuration (DSRC) Software
26. Data Flow Plan (DFP) development, format, and contents
27. DSRC Checklist development, format, and contents
28. Ops LAN operations and configurations
29. Data Management Team Concept of Operations
30. Data Management Team defined operational constraints
31. External Data Repository (EDR)
32. Product Generation (PG)
33. Short Term Planning Concept

IV. Skills

A. WISARD Core Skills

1. A WISARD candidate must have the ability to use appropriate terminology and acronyms.
2. A WISARD candidate must be skilled in general console operations.
3. A WISARD candidate must be skilled in the use of communications protocol.
4. A WISARD candidate must be skilled in the use of PIMS.

5. A WISARD candidate must be skilled in the use of the EHS systems necessary to perform the console job.

B. WISARD Specific Skills

1. A WISARD candidate must be skilled in using all facets of the DSRC software.
2. A WISARD candidate must be skilled in reading and interpreting the Data Flow Plan (DFP) and DSRC Checklist.
3. A WISARD candidate must be skilled in the use of the Product Generation (PG) application.
4. A WISARD candidate must be skilled in reading and interpreting the Short Term Plan (STP).
5. A WISARD candidate must be skilled in implementing DM planning concepts.

V. Experience

- A. A WISARD candidate must demonstrate the above required skills and knowledge while working in a realtime or simulated mission environment.

B. Simulations

1. A WISARD candidate must participate in at least 64 hours of simulations in preparation for their initial increment assignment.
2. An experienced ISS WISARD must participate in at least 24 hours of simulations to be re-certified for a new increment.

C. Previous space mission experience:

1. A WISARD candidate may be credited up to 16 hours of the required simulation experience if they have mission experience as a Spacelab Data Replanner (DREP).

D. On-the Job Training (OJT)

A WISARD candidate will develop the skills required for the WISARD position by assisting with console duties under the supervision of a certified WISARD. A WISARD candidate is required to perform at least 32 hours of OJT.

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A.2, PAYLOAD DEVELOPER TEAM CERTIFICATION REQUIREMENTS

I. Applicability

The term “Payload Developer” includes the facility, payload, or associated science team performing flight operations tasks. This appendix describes the requirements for the issuance of ISS PD certificates and ratings, the conditions under which these ratings are necessary, and the general operating rules for persons who hold those certificates and ratings. The requirements established in this appendix are focused on those specifics to be certified for operations with the POIC and interacting with on-orbit operations. The PD internal team certification requirements are not discussed except under eligibility requirements.

II. Eligibility Requirements

To be eligible for ISS PD certificate, a person interfacing with the POIC must:

- A. Read, speak, write, and understand the English language.
- B. Have good verbal and writing skills.
- C. Have good communications skills.
- D. Be assigned to the ISS PD operations team and certified by the Developer Operations lead as being trained as a member of the user team for performing assigned duties.
- E. Received certification from the Payload Operations and Training Team for GSP user training curriculum completion.

III. Knowledge Requirements

In order for the PD team personnel to respond to and perform the operations interface with the POIC and ISS, each person associated with the respective responsibilities must have knowledge of:

- A. The payload/facility operations requirements, resource constraints, and safety constraints.
- B. The payload/facility systems and performance, interfaces with the ISS racks and systems, and payload to ISS dependencies.
- C. Space-to-ground communication process.
- D. Voice loop protocol, phraseology, and techniques.
- E. Command system operations protocol and process for commanding to the payload/facility.
- F. Ground systems overview as related to payload/facility operations to include Payload Planning System, EHS, Payload Data Services System (PDSS), PIMS, etc.
- G. Operations procedures/interfaces to coordinate activities with the POIC.
- H. Overview of the Payload Operations Integration Function (POIF) documentation.
- I. Payload/facility to POIF operations documentation.
- J. Processes to prepare inputs to operations documentation through the PDL, Interim User Requirements Collection (iURC)/URC, and PIMS (procedures, planning, flight rules, etc.).
- K. Payload Operations Change Board (POCB) and the Payload Operations Data File Change Board (PODFCB) processes.

- L. Terminology and acronyms.
 - M. POIC display and command system (if required).
 - N. Overview of the ground communications/data system flow.
 - O. Participation in Payload Operations Integration Working Groups (POIWG) and other appropriate meetings.
 - P. Use of Payload Planning System (PPS)/Product Generation (PG) for accessing planning products.
- IV. Skill Requirements
- Skill requirements are met through hands-on participation and include:
- A. PD intra-team activities.
 - B. PD inter-team activities with POIC and knowledge of procedures.
 - C. Ability to build displays, command tables, and special computations using the POIC/PDSS systems.
 - D. Ability to use the PIMS to submit and retrieve data and requirements.
 - E. Space-to-ground voice system.
 - F. Develop and submit flight-ready crew procedures and file transfers.
 - G. Payload/experiment short term planning and daily re-planning.
 - H. Capability to operate in the mission environment performing multiple integration and operations tasks.
 - I. Ability to send commands in an operations environment.
 - J. Ability to make payload operational decisions based on knowledge of system-to-payload impacts.
 - K. Execution of Partner Control Center (PCC) protocols and interfaces.
- V. Experience
- A. Participating in POIWGs, TST, POCB, PODFCB, and other similar pre-flight activities that involve payload integration.
 - B. Developing operations data requirements in PDL, iURC/URC, and PIMS.
 - C. Reviewing and interacting with POIC operations integration documents.
 - D. Participating in integrated training and simulations.

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APPENDIX B

TRAINING COURSE CATALOG

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B, TRAINING COURSE CATALOG

**CI01 PAYCOM FUNCTIONS AND INTERFACES
ROUNDTABLE HANDOUT**

This course will provide the student with a detailed description of the payload training responsibilities. The trainee will understand through roundtable discussions the Payload Communicator (PAYCOM) responsibilities as well as the internal and external interfaces in the PAYCOM function.

**CI02 ISS AIR-TO-GROUND & SPACE TO GROUND OPERATIONS
MANAGEMENT PLAN**

DOCUMENT DOCUMENT

This users guide provides an operations overview, operational scenarios, and process flows. When the operations manual addresses physical hardware, the capabilities of the hardware are discussed.

**CI03 SPACE TO GROUND - AIR TO GROUND PROTOCOL
EXERCISE HANDOUT**

After this lesson, the student will be familiar with the conventions for speaking to the crew on Air to Ground and Space to Ground. This will include the reasoning for the conventions as well as actual demonstrations for information on loop management.

**CI04 PODF PROCEDURES AND DISPLAYS OVERVIEW
WEB-BASED HANDOUT**

This course provides a high-level overview of the US PODF. It shows the relationship between the US PODF and the ODF. An overview of how to read ISS procedures procedure and display reference materials, and the PODF process is included.

**CI05 PODF PROCEDURE AND DISPLAY DEVELOPMENT
OVERVIEW**

BRIEFING BRIEFING

This course defines the process for writing US PODF procedures and developing on-board payload displays. An overview of the PODF/PDRP team functions, OPMS, and DADs is included. This course details display and procedure development and methodology.

**CI06 PODF TEAM FUNCTIONS AND INTERFACES
ROUNDTABLE HANDOUT**

This course describes the PODF function. This course details how to write manual procedures. ODF standards and nomenclature are included.

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CI07 MANUAL PROCEDURE VIEWER OVERVIEW

This course will provide an overview of the Manual Procedure Viewer (MPV). It will contain an operations concept for the MPV and discuss the MPV library structure.

CI08 MANUAL PROCEDURE VIEWER – DETAILED

This course will be a detailed course on how to use the MPV.

DAT01 DATA MANAGEMENT FUNCTIONS & INTERFACES
 ROUNDTABLE HANDOUT

This course will describe in detail the roles and responsibilities of each member of the Data Management Team. Each functional position will be discussed in a roundtable format.

DAT02
 VIDEOTAPE

COMMAND & DATA HANDLING - GENERAL
 BRIEFING

This course will provide a general overview of the C&DH System. It will give a very general description of the support systems included in C&DH such as the C&C MDM, PL MDM, PCS, PEHG, and APS. It will also cover any relevant information concerning Partner systems.

DAT03
 VIDEOTAPE

COMMUNICATIONS AND TRACKING - GENERAL
 BRIEFING

This course will provide a general overview of the Communications and Tracking System. It will provide a very general overview of the S-Band, KU-Band, and the video subsystem. In addition it will provide a general description of KU-band and S-Band antennas and coverage. It will also cover any relevant information concerning Partner systems.

DAT04A	M-COMMUNICATIONS OUTAGE RECORDER (MEDIUM RATE COR)
VIDEOTAPE	BRIEFING

This course will present information necessary to understand the operation and management of the Communications Outage Recorder (COR) to support payload operations aboard the ISS for UF-1 & UF-2. This will include detailed coverage of such topics as COR hardware and software, record/dump procedures and preferences, interconnections to other elements of the onboard systems, limitations and constraints of the COR, commanding/routing, and troubleshooting procedures. Also covered will be an overview of any OOM procedures associated with the COR system. In addition this course will briefly describe the Zone Of Exclusion (ZOE) recorder playback operations.

DAT04B	H-COMMUNICATIONS OUTAGE RECORDER (HIGH RATE COR)
VIDEOTAPE	BRIEFING

This course will present information necessary to understand the operation and management of the COR to support payload operations aboard the ISS for UF-3. This will include detailed coverage of such topics as COR hardware and software, record/dump procedures and preferences, interconnections to other elements of the on-board systems, limitations and constraints of the COR, commanding/routing, and troubleshooting procedures. Also covered will be an overview of any OOM procedures associated with the COR system. In addition this course will briefly describe the ZOE recorder playback operations.

DAT05	PAYLOAD ETHERNET HUB/GATEWAY (PEHG)
VIDEOTAPE	BRIEFING

This course will present information necessary to describe the details of the operation and management of the Payload Ethernet Hub/Gateway (PEHG). This will also include detailed coverage of such topics as PEHG hardware and software, Ethernet capabilities and operations, data packetization overview, bandwidth limitations, Remote Terminal (RT) constraints and interfaces to other components of the on-board data system, commanding and operational scenarios (nominal and off-nominal).

DAT06	AUTOMATED PAYLOAD SWITCH (APS)
VIDEOTAPE	BRIEFING

This course will present information necessary to understand the operation and management of the Automated Payload Switch (APS). This will include detailed coverage of such topics as APS hardware and software, interconnections to other elements of the on-board systems, limitations and constraints of the APS, commanding and operational scenarios (nominal and off-nominal).

DAT07 HIGH RATE FRAME MULTIPLEXER (HRFM)
BRIEFING BRIEFING

This course will present information necessary to understand the operation and management of the High Rate Frame Multiplexer (HRFM). This will include detailed coverage of such topics as HRFM hardware and software, interconnections to other elements of the onboard systems, limitations and constraints of the HRFM, commanding, and operational scenarios (nominal and off-nominal).

DAT08	VIDEO SWITCHING UNIT (VSU)
VIDEOTAPE	BRIEFING

This course presents information necessary to understand the operation and management of the VSUs. This includes detailed coverage of such topics as VSU functions, VSU hardware and software, interconnections to other elements of the on-board systems, limitations and

constraints of the VSU, commanding/routing, and operational scenarios (nominal and off-nominal).

DAT09 VIDEO BASEBAND SIGNAL PROCESSOR (VBSP)
BRIEFING BRIEFING

This course presents information necessary to understand the operation and management of the VBSP. This briefing includes detailed coverage of such topics as VBSP functions, VBSP hardware and software, interconnections to other elements of the onboard systems, limitations and constraints of the VBSP, commanding/routing, and operational scenarios (nominal and off nominal).

DAT10	VTR/SCU/CAMERAS AND CAMCORDERS
VIDEOTAPE	BRIEFING

This course will present information necessary to understand the operation and management of the Video Tape Recorder (VTR), the Synchronization Control Units (SCU), and the video cameras and camcorder functions. This includes detailed coverage of such topics as VTR, SCU, and camera and camcorder functions, hardware and software, interconnections to other elements of the on-board systems, limitations and constraints, commanding/routing, and operational scenarios (nominal and off-nominal).

DAT11 TECHNOLOGY - CONCEPTS OF SIGNAL PROCESSING
HANDOUT HANDOUT

This course will familiarize trainees with background technologies used by C&T and C&DH PLSS. This information will provide a foundation for understanding system operations. Also covered miscellaneous ISS-specific information pertinent to the Data Management Team's responsibilities not covered in other DAT courses.

Contents: CCSDS Format from CCSDS packet sub-structures through CADUs; general chart on Reed-Soloman Encoding; MIL-STD1553 protocol and encoding basics; Basic 802.3 Ethernet; TAXI Protocol basics; TCT/IP--what it is, how it is used on-board ISS and in ground distribution; PUIs -- what they are and how ISS uses them; Packet-specific structures for H&S and Ancillary downlink; ISS S-band downlink and formatting -- which data is in which packets during which ISS modes; NTSC Video standards and format; Analog-Digital and Digital-Analog Conversion basics; Video Compression Basics; and Video Distribution / Pulse Frequency Modulation Basics.

DAT12A
VIDEOTAPE

INTEGRATED VIDEO SYSTEM
BRIEFING

This course is an overview of the on-board payload video system on the International Space Station. Material discussed in this lesson is related directly to the Payload On-board Video System (POVS) of the International Space Station (ISS) and is relevant to payload operators working the period from 7A.1 until the video equipment refurbishment at UF-5. First each of

the POVS subsystems are described in topical overview from the simplest to the most complicated. Details of each subsystem are taught in their respective DAT courses. Primary control and interface is mentioned during this discussion to give a system flavor to the instruction. Where relevant, a comparison or contrast with Spacelab will be made both within the subsystem and its interface.

DAT12B INTEGRATED VIDEO SYSTEM PROCESSES
VIDEOTAPE BRIEFING

This course contains an overview of the operations of payload video concepts for International Space Station (ISS). Material discussed in this lesson is related directly to the Video and Photo Operations from concept through post-increment for ISS and ground operations. The course is relevant to payload operators working the period from 7A.1 until the video equipment refurbishment at UF-5. First, each of the subsystems are taught in their respective DAT courses. Primary control and interfaces are mentioned during this discussion to give a system flavor to the instruction.

DAT13 COMMANDING: C&T/C&DH
BRIEFING BRIEFING

This course will describe the commanding to the ISS and telemetry from ISS. The C&DH portion will describe the architecture of on-board and ground support data handling for the ISS.

DAT14 NETWORK ORIENTATION
ROUNDTABLE HANDOUT

This course will cover the ground network that supports data transmission upon its receipt from the ISS. The topics include routing of data, transmission methods and protocols, and the required interfaces between the User Operations Facility (UOF), POIC, and any Remote Sites to support data transmission to coordinate data flow to Partner gateways.

DAT15 PDSS ORIENTATION
HANDOUT HANDOUT

This course will cover the purpose of PDSS and how data is routed through its system. This will include APID numbers and how these are used to route data and commands. The data characteristics that must be supplied to PDSS will also be discussed.

DAT18 PDRF
HANDOUT HANDOUT

This course will cover how Payload Data Request Forms (PDRF) are submitted and assessed and the coordination between the various groups that are responsible for processing the request. Detailed discussion of the PDRF data fields will be done in order to prepare the student to assist any user that is submitting the form.

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DAT19A DATA FLOW SCHEDULING-OVERVIEW
HANDOUT HANDOUT

This course is an overview of the process that produces the data flow plan, which is used for realtime execution. This course will cover how data and video requirements are collected, modeled, and incorporated into the data flow plan.

DAT19B DATA FLOW SCHEDULING-DETAILED
HANDOUT HANDOUT

This course is a detailed description of the Data System Routing and Configuration (DSRC). The course will present an end-to-end description of data flow plan generation from user inputs into URC to the generation of the plan for use by on-console personnel.

DAT20A ANTENNA MANAGEMENT DISPLAY-OVERVIEW
VIDEOTAPE BRIEFING

This course consists of two parts. The first part will cover a general overview of the TDRS Antenna Management Display and its use.

DAT20B ANTENNA MANAGEMENT DISPLAY-DETAILED
VIDEOTAPE BRIEFING

This course consists of two parts. This second part will include a detailed discussion of the blockage patterns, how the antenna lines-of-sight are impacted by the ISS body, interpreting what the display shows, what data is required to run the display, and how the display is used during realtime operations.

DAT22 PRODUCT OVERVIEW/DATA FLOW PLAN
HANDOUT HANDOUT

This course will provide a brief lecture, which will describe the contents of the various fields that make up the Data Flow Plan.

DAT25 OPS PRODUCT VERIFICATION OVERVIEW
DOCUMENT DOCUMENT

This course will cover the basic information that is necessary for the student to understand what is involved in operations product verification and how verification procedures may affect a particular team. The ops product verification plan is also included in this course to show the process for performing this task.

HOSC1040 GENERAL PURPOSE UTILITIES
WORKBOOK EXERCISE

This course provides the trainee a workstation overview and a hands-on introduction to the EHS software. The training focus is on file manipulation features, various software utilities and introduces frequently used (available) applications. This training is designed for those

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who wish a hands-on overview and have limited time to train. This class should be taken prior to selecting the individual application-specific classes.

HOSC2010 MARSHALL/HOSC OVERVIEW
CDROM CDROM

This class provides a basic introduction to the HOSC, its history, and projects supported. It is intended as an orientation for new employees.

HOSC2020 DATA SYSTEMS OVERVIEW
CDROM CDROM

This Data System Overview course will introduce the trainee to components of the HOSC Data System and Voice and Video Distribution System. Also included is the Stream Processing Overview course that covers data flow processing within the HOSC.

HOSC2050 USING THE DATABASES
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to operate the Telemetry Database application, Command Database application, User-Generated Data Element (UDE) Database application, and end-user aspects of the Database Change Request application. Off-line project-specific database applications will be discussed if available.

HOSC2060 USING THE EXCEPTION MONITOR APPLICATION
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to configure and operate the Exception Monitor application.

HOSC2070 USING HOSC DISPLAY GENERATION & OPERATION
 APPLICATION
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to build displays and operate them.

HOSC2080 USING THE COMPUTATION GENERATION &
 OPERATION APPLICATIONS
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to build computations and operate them.

HOSC2090 USING THE SCRIPTING APPLICATIONS
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to build scripts and operate them.

HOSC2100 USING THE NRT DATA REQUEST APPLICATION
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to build and use the different types of Near Real Time (NRT) data requests. The class will also include a brief introduction to the Applix Spreadsheet application.

HOSC2110 USING APPLIX
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to manipulate data obtained from the NRT or Workstation monitor applications.

HOSC2120 USING THE END-USER COMMAND APPLICATIONS
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to build command update forms, update commands and groups, uplink the commands, view the responses, and perform any post transmission delogs.

HOSC2130 USING FRAMEMAKER
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to build files and books within the application.

HOSC2150 USING THE PAYLOAD INFORMATION MANAGEMENT
 SYSTEM (PIMS)-PART 1
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to use the Documents, Process Flows, and User Profile applications in PIMS.

Also provided in the course will be the mechanics of how to fill out an OCR and PDRF forms, when to submit requests, and the approval process for each form. Also samples of the necessary information for these forms will be included.

HOSC2160 USING THE PAYLOAD INFORMATION MANAGEMENT
 SYSTEM (PIMS)-PART 2
WORKBOOK EXERCISE

This exercise will continue the PIMS overview and operational enhancements that are available to POIC cadre after the PIMS 1 course has been completed.

HOSC2170 USING THE PIXMAP EDITOR
WORKBOOK EXERCISE

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The course will provide the trainee with information on how to build pixmaps and import them into displays.

HOSC2180 USING THE GROUND SUPPORT EQUIPMENT PACKETS
APPLICATIONS
WORKBOOK EXERCISE

This course will provide the trainee with information on building an EGSE packet.

HOSC2190 USING THE STRIP CHART RECORDER APPLICATIONS
WORKBOOK EXERCISE

The course will provide the student with information on creating channel assignment files and working with the associated hardware.

HOSC2200A ON-BOARD SHORT TERM PLAN (OSTP) GROUND
MANAGEMENT TOOL-VIEWING
WORKBOOK EXERCISE

This course will be covered in two parts. Part A will cover viewing the OSTP - how to use it to see what the electronic plan is.

HOSC2200B ON-BOARD SHORT TERM PLAN (OSTP) GROUND
MANAGEMENT TOOL-EDITING
WORKBOOK EXERCISE

This course will be covered in two parts. Part B will discuss how to edit the OSTP.

HOSC2210A AUTOMATED PROCEDURES GROUND MANAGEMENT
TOOL-VIEWING
WORKBOOK EXERCISE

This course will be covered in two parts. Part A will cover how to view the automated procedure being executed. The trainee will be provided information for developing and compiling automated procedures to be executed on board.

HOSC2210B AUTOMATED PROCEDURES GROUND MANAGEMENT
TOOL-EXECUTION
WORKBOOK EXERCISE

This course will be covered in two parts. Part B will cover how to manage the execution of automated procedures.

HOSC2220A FILE GROUND MANAGEMENT TOOL - VIEWING
WORKBOOK EXERCISE

This course will be covered in two parts. Part A will cover how to view the file uplink schedules. The trainee will be provided with information on how to develop and uplink files to be executed on board.

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HOSC2220B FILE GROUND MANAGEMENT TOOL - BUILDING
WORKBOOK EXERCISE

This course will be covered in two parts. Part B will cover how to build file uplink schedules and how to manage the PLMDM.

HOSC2230 OPERATIONS CONTROL MANAGEMENT SYSTEM
 (OCMS) REFERENCE FILE EDITOR
WORKBOOK EXERCISE

This course will provide the trainee with information for using the Reference File Editor (RFE).

HOSC2240 COMMAND PLAN MANAGEMENT TOOL
WORKBOOK EXERCISE

This course will provide the trainee with information for viewing and editing the command plan.

HOSC3000 USING THE PRIVILEGES WITHIN THE DATABASE
 APPLICATIONS
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to modify and update the various EHS databases, which include the Command, Telemetry, User-Generated Data Element, and Operational Data Element databases. In addition trainees will use the Database Monitor and Control application and the privileged portions of the Database Change Request application.

HOSC3010 USING THE COMMAND SYSTEM MANAGEMENT
 APPLICATION
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to configure and use the Command System Management application.

HOSC3050 USING THE DATA PACKET GENERATOR APPLICATION
WORKBOOK EXERCISE

This course will provide the trainee with the information necessary to create a TDM stream that can be played back into the system for troubleshooting, diagnostics, and training support.

INC_X_DA_01 INC-X DATA SYSTEMS OPERATIONS
HANDOUT HANDOUT

This course is a presentation of unique data systems and operations that are specific to an increment. This will include discussing special data requirements and objectives that are specific to the increment.

INC_X_DA_02 INC-X VIDEO OPERATIONS
HANDOUT HANDOUT

This course is a presentation of the unique video systems and operations that are specific to an increment. This will include discussing special video requirements and objectives that are specific to the increment. In addition, it will provide a high-level look at the payload video and high-rate data operational requirements. It will highlight the capabilities this system will provide for the payloads for a given increment.

INC_X_DA_03 INC-X GROUND DATA SERVICES
HANDOUT HANDOUT

This course is a presentation of the unique ground systems and their operations that are specific to an increment.

INC_X_DA_04 VIDEO UPLINK: ON-BOARD & GROUND GUIDELINES &
PROCEDURES
VIDEOTAPE BRIEFING

This course will include information about the preparation, planning, and execution of video uplinks to ISS. It will include a special emphasis on working with the payloads to acquire the uplink material, the guidelines and procedures that the VULCON will execute the uplink and the coordination that is required to insure that the uplink is completed.

INC_X_OI_05 INC-X SAFETY OVERVIEW - STATIONWIDE
HANDOUT BRIEFING

Prior to taking this course the student should be familiar with the experiments on board by completing the course on the Increment Payloads, Experiments, and Facilities.

This course will provide the student with an overview of operational hazard controls associated with all payloads (Stationwide, US payloads and all payloads in US Element) that will be in the increment. Flight rules generated due to experiment hazards and any other safety concerns should be covered in this course.

INC_X_TRA20 INCREMENT PAYLOAD EXPERIMENTS AND
FACILITIES OVERVIEW
WEB-BASED HANDOUT

After this training, the student will have a general understanding of the experiments on board each increment. This includes information on operations, system interfaces, and experiment capabilities, possible malfunctions, maintenance/housekeeping requirements and launch and return schedule.

OC01 CREW INTERFACE OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student should be able to identify operation modes of the PCS, configurations of the PCS, and how the PCS is used for payload operations.

This operations manual provides an overview of the PCS, including the hardware, software, and operation modes. PCS configurations and utilization for payload operations are also addressed.

OC02 FILE TRANSFER OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student should be able to identify the File transfer ground rules, types of file transfers, and File transfer roles and responsibilities.

This operations manual provides the capabilities for file transfers to support payload operations. File transfer ground rules, methods of file transfer, and file uplink roles and responsibilities are addressed. Operational scenarios and process flows are included.

OC03 END-TO-END COMMANDING OPS MANUAL
DOCUMENT DOCUMENT

The student should be able to identify:

- † The types of commands
- † The ground network interfaces for commanding
- † The command related roles and responsibilities
- † The on-orbit systems for commanding
- † Methods of command verification

This manual describes the format of commands, the ground rules for commanding, the ground and on-orbit systems involved in commanding and the roles and responsibilities related to end-to-end commanding. End-to-end commanding operations scenarios and processes are included.

OC04 PLSS OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student should be able to Identify the PLSS and the PLSS constraints.

This operations manual identifies the PLSS, how the PLSS works, and operational scenarios of the PLSS. The PLSS included in this manual is the Electrical Power System (EPS), Thermal Control System (TCS), Lab Nitrogen System, Vacuum Exhaust System (VES), and Vacuum Resource System (VRS), and Potable Water System.

OC05 DOCUMENT OSTP OPERATIONS MANUAL DOCUMENT

The student should be able to:

- † Understand OSTP usage and capabilities
- † Modify OSTP

This operations manual provides operations overview, operational scenarios, and process flows. This manual addresses OSTP software, and making changes to the OSTP.

OC06
DOCUMENT

PEP/PLMDM OPERATIONS MANUAL
DOCUMENT

This operations manual provides operations overview, operational scenarios, and process flows for the PLMDM. This course will introduce the Payload Multiplexer/Demultiplexer (PLMDM) and the MIL-STD-1553B bus network and their use for downlinking low rate payload and payload support data. This will include detailed coverage of such topics as the capabilities of these elements of the data system, Payload Executive Software (PES) overview, additional software related to the PLMDM, and other aspect of managing low rate payload data. Also covered will be the interfaces between the PLMDM and C&C MDM as well as other data related interfaces to the PLMDM.

OC07
DOCUMENT

EXPRESS RACK OPERATIONS MANUAL
DOCUMENT

The student should be able to:

- † Identify capabilities of EXPRESS Rack
- † Identify ISS system interfaces
- † Understand the operations concept of the EXPRESS Rack

This operations manual identifies the EXPRESS Rack subsystems and the capabilities of the EXPRESS Rack. Interfaces to ISS systems, the operations concept, operations policies and constraints, operational scenarios, and functional flows are also included.

OC08 LSE OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student should be able to identify the Lab Support Equipment (LSE) and LSE constraints.

This operations manual provides the capabilities of the LSE. Constraints of the LSE are addressed. Operational scenarios and process flows for the LSE are also included.

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OC09A COMMAND LINK MANAGEMENT-OVERVIEW
VIDEOTAPE BRIEFING

This course will present an overview of the ground command system. This overview will include topics such as user commanding, the process by which commands are sent to the ISS, POIC-Stationwide users command link interfaces and procedures, and POIC-ISS command link interfaces and procedures.

OC09B COMMAND LINK MANAGEMENT-DETAILED
VIDEOTAPE BRIEFING

This course is a continuation of DAT16A. The detailed topics include: the discussion of the procedures that are necessary to operate and manage the ground command system, configuration and coordination of the command links between the POIC and users, SSCC-POIC command link coordination, command rejects, and command database overview.

OC10 TIMELINER OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student should be able to identify the purpose of TIMELINER.

This operations manual provides operations overview, operational scenarios, and process flows for TIMELINER.

OC12 STATIONWIDE PLSS OVERVIEW
VIDEOTAPE BRIEFING

The student will learn:

- † Capabilities and constraints of the Stationwide PLSS
- † Capabilities and constraints of the NASA Element PLSS
- † Capabilities and constraints of the JEM-Unique PLSS
- † Capabilities and constraints of the APM-Unique PLSS

This course will cover the capabilities and constraints of the Stationwide PLSS, including thermal, power, nitrogen, water, and vacuum. This course will cover the capabilities and constraints of the NASA element PLSS, including Electrical Power System (EPS), Thermal Control System (TCS), Lab Nitrogen System, Vacuum Exhaust System (VES), and Vacuum Resource System (VRS), and the Potable Water System. This course will cover the capabilities and constraints of the PLSS unique to the JEM and APM. An overview of generic PLSS displays is included in this course.

OC13 PRODUCT OVERVIEW/COMMAND PLAN
VIDEOTAPE BRIEFING

The student will learn:

- † How to read command plan
- † How to get command plan changed

This course will cover the format and field definition of the command plan. This course will cover the process needed to get changes made to the command plan.

OC14 DOCUMENT APM SYSTEMS OPERATIONS MANUAL DOCUMENT

The student will learn details about systems within the APM utilized by US payloads. These systems include power, thermal, vacuum, nitrogen, water, and unique systems.

OC15 DOCUMENT JEM SYSTEMS OPERATIONS MANUAL DOCUMENT

The student will learn details about systems within the JEM utilized by US payloads. These systems include power, thermal, vacuum, nitrogen, water, and unique systems such as helium, argon, CO₂.

OC16 AUTOMATED PROCEDURE DEVELOPMENT BRIEFING

This course will describe the use and development of automated procedures. This course will detail how an automated procedure is generated and compiled. This will include use of the TIMELINER language and how to build auto procedures.

OC17 DOCUMENT ETOV OPERATIONS MANUAL DOCUMENT

This manual will give controllers the information necessary to conduct Shuttle Operations to and from ISS.

OC18
DOCUMENT

EXPRESS PALLET OPERATIONS MANUAL
DOCUMENT

This operations manual identifies the EXPRESS Pallet subsystems and the capabilities of the EXPRESS Pallet. Interfaces to ISS systems, the operations concept, operations policies and constraints, operational scenarios, and functional flows are also included.

OC19 RSA SYSTEMS OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student will learn details about systems within the RSA element utilized by payloads. These systems included power, thermal, vacuum, water, and unique systems.

OC20 SCM FUNCTIONS AND INTERFACES INCREMENT
 OPERATIONS
 ROUNDTABLE HANDOUT

This course will describe in detail the roles and responsibilities of the System Configuration Manager (SCM).

OC21 SOC FUNCTIONS AND INTERFACES INCREMENT
OPERATIONS

ROUNDTABLE HANDOUT

This course will describe in detail the roles and responsibilities of the Shuttle Ops Coordinator (SOC).

OC22 PRO & PSE FUNCTIONS AND INTERFACES
INCREMENT OPERATIONS

ROUNDTABLE HANDOUT

This course will describe in detail the roles and responsibilities of the Payload Rack Officer (PRO) and Payload System Engineer (PSE).

OC23 OC FUNCTIONS AND INTERFACES INCREMENT
OPERATIONS

ROUNDTABLE HANDOUT

This course will describe in detail the roles and responsibilities of the Operations Controller.

OC24 CPO FUNCTIONS AND INTERFACES INCREMENT
OPERATIONS

ROUNDTABLE HANDOUT

This course will describe in detail the roles and responsibilities of the Command PEP MDM Officer (CPO).

OI01 DEFINITION OF TERMS, ACRONYMS

HANDOUT HANDOUT

The course will provide reference material:

† Acronyms List

† Definitions of Terms which are Space Station peculiar (an extensive list)

The material will define some terms that are peculiar to Space Station and important for cadre personnel to understand.

OI02 POIF DOCUMENTATION

HANDOUT HANDOUT

This course will provide the student with information on documentation developed within the POIF. The course will include the documentation tree as well as identifying individual document contents, document purpose, and document control level.

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OI03
 DOCUMENT

POIF TEAM DEFINITION DOCUMENT

The Team Definition Document International Space Station Operations (SSP 58303) will provide the student with detailed information on the Payload Operations Integration Function (POIF). The course will identify the functions and responsibilities of the POIF. Sections will be dedicated to each of the major groups in the POIF: POIC cadre, USPCC cadre, EPA cadre, Operations Prep, and Operations Feedback.

OI04

VIDEOTAPE

STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS BRIEFING

This course will explain the payload operations concept from the Stationwide and US Partner perspectives. The course will explain the scope of the POIC and US Partner roles in overall operations. The course will spell out the roles and responsibilities of each of the NASA centers as well as the International Partners and User Operations Facilities.

Additional topics covered include an overview of the Space Station Control Center (SSCC) and flight operations team structure with special emphasis on the SSCC/POIC position interfaces. Also included are a detailed description of the POIC team structure; POIC team specific interfaces and responsibilities to the SSCC and each of the Partners.

This course will also cover the POIC increment preparation process and the POIC increment Operations (realtime) processes.

OI05A

ROUNDTABLE

POD FUNCTIONS AND INTERFACES - INCREMENT PREP HANDOUT

This course will cover the basic operations concept that will be used by the individual Operations Integration position: Payload Operations Director (POD), Payload Operations Manager (POM), and Payload Operations Safety Engineer. Also covered will be the position roles and responsibilities and cross-team interactions required for POIF processes. These include realtime execution, realtime support, and weekly planning. This course should also cover documentation that would feed or affect POIF documents and processes.

OI05B

ROUNDTABLE

POD FUNCTIONS AND INTERFACES - INCREMENT OPERATIONS

HANDOUT

This course will cover the basic operations concept that will be used by the individual Operations Integration position: Payload Operations Director (POD), Payload Operations Manager (POM), and Payload Operations Safety Engineer. Also covered will be the position roles and responsibilities and cross-team interactions required for POIF processes. These

include realtime execution, realtime support, and weekly planning. This course should also cover documentation that would feed or affect POIF documents and processes.

OI06	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, etc.)
VIDEOTAPE	BRIEFING

The student will understand:

- † Purpose and scope of PPS, PDL, IOP, EHS, PDSS, PIMS
- † Types of data required by each ground system
- † Data available in each ground system
- † Target audience for use of each ground system

The course will explain the purpose and scope of each of the ground systems listed above. The course will detail the types of information collected and/or distributed by each of the systems. It will also discuss the target audiences that will interface with each of the systems.

OI07A POIC SAFETY FUNCTIONS AND INTERFACES -
 INCREMENT PREP
 ROUNDTABLE HANDOUT

This course will cover the basic operations concept that will be used by the individual Operations Integration position: Payload Operations Director (POD), Payload Operations Manager (POM), and Payload Operations Safety Engineer. Also covered will be the position roles and responsibilities and cross-team interactions required for POIF processes. These include realtime execution, realtime support, and weekly planning. This course should also cover documentation that would feed or affect POIF documents and processes.

OI07B
 POIC SAFETY FUNCTIONS AND INTERFACES -
 INCREMENT OPERATIONS
 ROUNDTABLE
 HANDOUT

This course will cover the basic operations concept that will be used by the individual Operations Integration position: Payload Operations Director (POD), Payload Operations Manager (POM), and Payload Operations Safety Engineer. Also covered will be the position roles and responsibilities and cross-team interactions required for POIF processes. These include realtime execution, realtime support, and weekly planning. This course should also cover documentation that would feed or affect POIF documents and processes.

OI08A STOWAGE FUNCTIONS AND INTERFACES -
INCREMENT PREP
ROUNDTABLE HANDOUT

This course will cover the basic operations concept that will be used by the individual Operations Integration position: Payload Operations Director (POD), Payload Operations Manager (POM), and Payload Operations Safety Engineer. Also covered will be the position roles and responsibilities and cross-team interactions required for POIF processes. These

include realtime execution, realtime support, and weekly planning. This course should also cover documentation that would feed or affect POIF documents and processes.

OI08B STOWAGE FUNCTIONS AND INTERFACES -
 INCREMENT OPERATIONS
ROUNDTABLE HANDOUT

This course will cover the basic operations concept that will be used by the individual Operations Integration position: Payload Operations Director (POD), Payload Operations Manager (POM), and Payload Operations Safety Engineer. Also covered will be the position roles and responsibilities and cross-team interactions required for POIF processes. These include realtime execution, realtime support, and weekly planning. This course should also cover documentation that would feed or affect POIF documents and processes.

OI09 LOGISTICS/STOWAGE OPERATIONS MANUAL
DOCUMENT DOCUMENT

The student should be able to:

- † Identify stowage roles and responsibilities
- † Identify pre-increment operations
- † Identify increment (realtime) operations

This operations manual describes the stowage management operations concept. The interaction between pre-increment and real time management of stowage operations is addressed. Operations scenarios and process flows are included.

OI10 HOUSTON SUPPORT GROUP (HPL & HPO) FUNCTIONS
 AND INTERFACES
ROUNDTABLE HANDOUT

This course will cover the basic operations concepts that will be used by the Houston Support Group. The position role and responsibilities and cross-team interactions will be covered.

PLA01 INTRODUCTION TO MISSION PLANNING
VIDEOTAPE BRIEFING

The student will be able to identify the 3 phases of planning: Operations Preparation, Short-Term Planning (STP) and realtime replanning as well as understand the process flows for the three phases of planning.

The course will introduce the distributed planning concept, from the pre-increment work of operations preparation through STP and realtime replanning.

PLA02A OPERATIONS PREPARATION FUNCTIONS &
INTERFACES
ROUNDTABLE HANDOUT

The student will understand the Mission Planning (MP) Ops Prep planning process for Early Payload Accommodation (EPA). Information presented in this roundtable includes the mission planning specific functions, interfaces, products developed, and the timing template associated with Ops Prep.

PLA02B SHORT TERM PLANNING FUNCTIONS & INTERFACES
ROUNDTABLE HANDOUT

The student will understand the Mission Planning (MP) Short Term Planning process for Early Payload Accommodation (EPA). Information presented in this roundtable includes the mission planning specific functions, interfaces, products developed, and the timing template associated with STP.

PLA02C REALTIME OPERATIONS FUNCTIONS & INTERFACES
ROUNDTABLE HANDOUT

The student will understand the Mission Planning (MP) Realtime Operations process for Early Payload Accommodation (EPA). Information presented in this roundtable includes the mission planning specific functions, interfaces, products developed, and the timing template associated with Realtime Operations.

PLA03 PPS OVERVIEW
VIDEOTAPE BRIEFING

The student will:

- † Understand the purpose and scope of Payload Planning System (PPS)
- † Understand the general use of the modules of PPS

The course will give an overview of the PPS and how it is used for Space Station operations preparation, short-term planning and realtime operations. Each module of PPS will be discussed at an overview level.

PLA04 PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
HANDOUT HANDOUT

After this lesson, the student will be able to effectively read and use all mission planning products: On-Orbit Operations Summary (OOS), OOS Day at a Glance, Resource Distribution Summary (RDS), STP, and OSTP.

The student will be presented with detailed instruction on how to interpret the data presented in these products. Their capabilities and limitations will also be discussed. Publication schedules relative to Increment operations will also be presented.

PLA05 INTRO TO SPACE STATION ORBITAL MECHANICS
VIDEOTAPE BRIEFING

The student should be able to:

- † Convert GMT to any appropriate time zone
- † Identify LVLH, Inertial coordinate systems
- † Locate Space Station body axes
- † Understand the effects of an orbital correction burn
- † Identify apogee and perigee of an orbit
- † Understand launch window basics
- † Understand microgravity constraints

This course will cover the basics of orbital mechanics, beginning with time measurement and coordinate systems. The nominal Station attitudes will be described, as well as the altitude, inclination, orbital period, etc. The basics of launch windows will be described, as will the effects of the Space Station structure on the microgravity environment.

PLA06 PPS/PRODUCT GENERATION (PG) OVERVIEW
WORKBOOK EXERCISE

The student will be able to:

- † Successfully use all functions of PG to develop products
- † Successfully generate products using PG
- † Understand PG interfaces to EDR (External Data Repository) and the rest of PPS

This course will cover the use of the PG tool to obtain the desired operations products. It will also cover the interfaces of PG with the EDR and how PG is used with respect to the rest of PPS. This course is developed for the general user and for the cadre members who will extensively use several of the PPS modules.

PLA08 PPS/USER REQUIREMENTS COLLECTION (URC)
WORKBOOK EXERCISE

The student will be able to:

- † Successfully use URC to create and update payload activity requirements
- † Understand URC interfaces to EDR and the rest of PPS
- † Help users and facility planners create/update activity requirements

This exercise will give a detailed description of URC and its functionality. It will also cover the interfaces of URC with the EDR and how URC is used with respect to the rest of PPS. The exercise is intended for cadre members who will extensively use several of the PPS modules.

PLA09 PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)

HANDOUT

The student will be able to:

- † Understand the capabilities of FDPA
- † Understand FDPA interfaces to EDR and the rest of PPS

This course will give an overview of FDPA and its functionality. This course is intended to give cadre members an overview of FDPA so they are familiar with all modules of the PPS.

PLA10
WORKBOOK

PPS/PLANNER
EXERCISE

The student will be able to:

- † Successfully use Planner to generate and update an OOS
- † Understand Planner interfaces to EDR and the rest of PPS

This exercise will give a detailed description of Planner and its functionality. It will also cover the interfaces of Planner with the EDR and how Planner is used with respect to the rest of PPS. This exercise is intended for cadre members who will extensively use several of the PPS modules.

PLA11 PPS/CONSOLIDATED PLANNING SYSTEM (CPS) WORKBOOK EXERCISE

The student will be able to:

- † Understand CPS to perform detailed planning
- † Understand CPS interfaces to CEIT (CPS-EDR Interface Tool) and the rest of PPS
- † Understand use of CPS with respect to integrating Partner and SSCC data

This course will give a detailed description of CPS and its functionality. It will also cover the interfaces of CPS with CEIT (CPS-EDR Interface Tool) and how CPS is used with respect to the rest of PPS. This course is intended for cadre members who will extensively use several of the PPS modules.

PLA12 PPS/INTERIM USER REQUIREMENTS COLLECTION
(iURC)

HANDOUT

The student will be able to:

- † Successfully understand how to obtain an iURC user account
- † Successfully understand how to access iURC from the Web
- † Successfully understand how to access the iURC on-line help/tutorial to aid in the creation of payload activity requirements

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This course is intended to aid first time users in establishing iURC accounts and to direct them to the available on-line help/tutorial.

PLA13 PPS/CPS-EDR INTERFACE TOOL (CEIT)
WORKBOOK EXERCISE

The student will be able to:

- † Successfully use CEIT to transfer data between CPS and EDR
- † Understand CEIT interfaces to EDR and the rest of PPS
- † Help payload planners facilitate data transfer between PPS components

This exercise will give a detailed description of CEIT and its functionality. It will also cover the interfaces of CEIT with CPS and EDR and how CEIT is used with respect to the rest of PPS. The exercise is intended for cadre members who will extensively use several of the PPS modules.

PLA14 PPS/EXTERNAL DATA REPOSITORY (EDR)
WORKBOOK EXERCISE

The student will be able to:

- † Understand EDR and the interface to PPS
- † Successfully import/export data from SSCC and/or partners to EDR

This course will give a detailed description of EDR and its structure. It will also cover the interfaces of EDR with the rest of PPS. This course is intended for cadre members who will extensively use several of the PPS modules.

PLA15 ETOV FUNCTIONS AND INTERFACES
ROUNDTABLE HANDOUT

The student will understand the Mission Planning (MP) ETOV pre-flight planning process for Early Payload Accommodation (EPA). Information presented in this roundtable includes the mission planning specific function, interfaces, products developed/reviewed, and the timing template associated with the ETOV planning cycle.

STADOC1 ISS FAMILIARIZATION
DOCUMENT DOCUMENT

Introduction to ISS, C&DH Overview, EPS Overview, C&T Overview, TCS Overview, ECLSS Overview, GN&C Overview, Payloads Overview, Robotics Systems Overview, EVA Overview, Structures & Mechanisms Overview, Flight Crew Systems Overview, On-Orbit Maintenance Overview, Crew Health Care Systems, Operations and Planning Overview are covered in this familiarization document.

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STADOC2 ISS GUIDANCE, NAVIGATION, AND CONTROL
 TRAINING MANUAL
DOCUMENT DOCUMENT
GNC Overview, GNC System Software, Navigation, US Attitude Control Subsystem, and
GNC Operations will be discussed in this training manual.

STADOC3 ISS THERMAL CONTROL SYSTEM TRAINING MANUAL
DOCUMENT DOCUMENT
Thermal Control System (TCS) Overview, TCS Architecture, USOS Passive and Active
TCS, ROS TCS, Flight-by-flight Operations, Lab Internal TCS, ITCS heat collection, heat
transportation, heat rejection, EETCS heat collection, transportation and rejection will be
discussed in this training manual.

STADOC4 ISS COMMAND & DATA HANDLING TRAINING
 MANUAL
DOCUMENT DOCUMENT
C&DH Overview, Station Modes, Portable Computer System and Station support computer,
how displays work, and caution and warning will be discussed in this training manual.

STADOC5 ISS STRUCTURES & MECHANISMS TRAINING
 MANUAL
DOCUMENT DOCUMENT
Structures and Mechanisms Overview, Outfitting, Common Berthing Mechanisms, Manual
Berthing Mechanisms, Integrated Motor Controller Assembly, Lab Cradle Assembly,
Segment to Segment Attachment System, Rocketdyne Truss Attachment System, etc will be
discussed in this training manual.

STADOC6 ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
DOCUMENT DOCUMENT
EPS Overview, USOS EPS, Primary Power System, and Secondary Power System will be
discussed in this training manual.

STADOC7 ISS ENVIRONMENTAL CONTROL & LIFE SUPPORT
 SYSTEM (ECLSS) TRAINING MANUAL
DOCUMENT DOCUMENT
The document details the information on temperature, water collection, air quality on board
the ISS as well as other information necessary for the safety and comfort of the crew.

TRA01 PAYLOAD TRAINING OVERVIEW
BRIEFING HANDOUT
The trainee will be given an overview of payload training. The student should receive a clear
understanding of the purpose of payload training, definitions of common payload training

terms, high-level explanation of and timescale for payload training processes, and primary responsibilities and interfaces for each payload training positions.

TRA02 PAYLOAD TRAINING PROCESSES
BRIEFING HANDOUT

The trainee will be given detailed description of the payload training processes. The student should receive a clear understanding of the training processes for crew and ground support personnel in the planning, development, scheduling, and implementation phases of payload training.

TRA03 TRAINING FUNCTIONS - PAYLOAD TRAINING
 INTEGRATOR (PTI)
ROUNDTABLE HANDOUT

This course will provide the student with a detailed description of the payload training responsibilities. The trainee will understand through roundtable discussions, the Payload Training Integrator (PTI) responsibilities as well as the internal and external interfaces in the PTI function.

TRA04 TRAINING FUNCTIONS - CREW TRAINING
 COORDINATOR
ROUNDTABLE HANDOUT

This course will provide the student with a detailed description of the payload training responsibilities. The trainee will understand through roundtable discussions, the Crew Training Coordinator (CTC) responsibilities as well as the internal and external interfaces in the CTC function.

TRA05 VOICE PROTOCOL
HANDOUT/EXERCISE HANDOUT

After this lesson, the student will be familiar with standard voice protocol.

The student will be presented with standard voice protocol conventions including mission specific phrases, description formats and general loop management. The reasoning for such conventions will be discussed and actual demonstrations will be presented and/or performed.

The student will become familiar with EVoDs and EViDs in this course.

This course will provide the student with a detailed description of the payload training responsibilities. The trainee will understand through roundtable discussions, the Simulation Engineer (SE) responsibilities as well as the internal and external interfaces in the SE function.

TRA07
ROUNDTABLE

TRAINING FUNCTIONS - SIMULATION TEAM
HANDOUT

This course will provide the student with a detailed description of the payload training responsibilities. The trainee will understand through roundtable discussions, the Simulation Team responsibilities as well as the internal and external interfaces in the Simulation Director (SD), Simulation Supervisor (SS) and Simulation Coordinator (SC) functions.

TRA08
 ROUNDTABLE

This course will provide the trainee with a detailed description of simulation planning and execution. This course should give the student the skills necessary to build and verify sim products as well as perform sim execution task. This course should present the concepts documented in the Sim Guidelines Document.

TRA09	MULTI-CULTURAL TRAINING
VIDEOTAPE	BRIEFING

This training provides an introduction to the cultural diversity of the International Partners and Payload Developers working on the ISS.

TRA10 BASIC INSTRUCTOR COURSE
HANDOUT BRIEFING

This course will provide information to trainees that will be teaching or instructing the crew and ground support personnel in the classroom at JSC or MSFC on experiment simulators, procedures, operations, etc.

TRA11 JSC TRAINING FACILITIES OPERATIONS
HANDOUT BRIEFING

This course will provide information to trainees that will be teaching or scripting in the Space Station Training Facility (SSTF) at JSC. This course is needed for instructor certification.

TRA12 TRAINING FUNCTIONS - PAYLOAD GSP TRAINING COORD
ROUNDTABLE HANDOUT

This course will provide the student with a detailed description of the payload training responsibilities. The trainee will understand through roundtable discussions, the Payload Ground Support Personnel Training Coordinator (PGSPT Coord) responsibilities as well as the internal and external interfaces in the PGSPTC function.

TRA13
BRIEFING

TReK OVERVIEW
HANDOUT

This course covers the basic capabilities of the Telemetry Resource Kit (TReK), including using data packets, receiving telemetry, and commanding.

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DEMO

This course shows the user the actual screens used to access TReK and describes how to maneuver within the databases.

TRA15	TRAINING FUNCTIONS -GROUND TRAINING
INTEGRATOR	
ROUNDTABLE	HANDOUT

This course will provide the student with a detailed description of the Ground Training Integrator's (GTI) responsibilities and interfaces. The trainee will understand through roundtable discussions, the GTI responsibilities as well as the internal and external interfaces in the GTI function.

TRA16	PAYLOAD DATA SET OVERVIEW
BRIEFING	BRIEFING

This briefing details the training data set portion of the Payload Data Library.

TRA17 MPLM OVERVIEW
HANDOUT HANDOUT

An overview of the Multi-Purpose Logistics Module (MPLM) which is a containerized cargo environment designed to supply the ISS and return from ISS and features pressurized storage.

TRA18 LAB SUPPORT EQUIPMENT OVERVIEW
HANDOUT HANDOUT

Topics to cover:

Microscope, LSE tools, refrigerators, freezers, cameras - tools for a specific mission/flight/increment.

TRA19
HANDOUT

Topics to be covered in this course are the hardware residing in the ISPR, ISPR description, and information on rack-level transfer.

Topics such as nitrogen, power, cooling, thermal, vacuum, and capabilities/limitations such as how much weight each rack holds will also be covered.

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APPENDIX C
CURRICULUMS

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C.1, PAYLOAD CADRE TRAINING CURRICULUMS

The following lists outline the curriculums that each position must complete for certification purposes. The lists include Generic Operations Training (GOT), Position-Specific Training (PST), and Payload-Specific Training (PLST). GOT is the generic curriculum that is applied when the cadre is assigned. The PST is training which applies only to that specific cadre position. The PLST is training on payload activities, interfaces, and operations.

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BANDIT CURRICULUM

COURSE #	TYPE	TITLE
DAT01	PST	DATA MANAGEMENT FUNCTIONS AND INTERFACES
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT04A	PST	M-COMMUNICATIONS OUTAGE RECORDER (MEDIUM RATE COR)
DAT04B	PST	H-COMMUNICATIONS OUTAGE RECORDER (HIGH RATE COR)
DAT05	PST	PAYLOAD ETHERNET HUB/GATEWAY (PEHG)
DAT06	PST	AUTOMATED PAYLOAD SWITCH (APS)
DAT07	PST	HIGH RATE FRAME MULTIPLEXER (HRFM)
DAT08	PST	VIDEO SWITCHING UNIT (VSU)
DAT10	PST	VTR/SCU/CAMERAS AND CAMCORDERS
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
DAT19B	PST	DATA FLOW SCHEDULING-DETAILED
DAT20A	GOT	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT20B	PST	ANTENNA MANAGEMENT DISPLAY-DETAILED
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)-PART 1
INC-X-DA01	PLST	INC-X DATA SYSTEMS OPERATIONS
INC-X-DA02	PLST	INC-X VIDEO OPERATIONS
INC-X-DA03	PLST	INC-X-GROUND DATA SERVICES
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA02C	GOT	REALTIME OPERATIONS FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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CPO CURRICULUM

COURSE #	TYPE	TITLE
CI04	GOT	PODF PROCEDURES AND DISPLAYS OVERVIEW
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT20A	GOT	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2100	GOT	USING THE NRT DATA REQUEST APPLICATION
HOSC2110	GOT	USING APPLIX
HOSC2120	GOT	USING THE END-USER COMMAND APPLICATIONS
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
HOSC2170	GOT	USING THE PIXMAP EDITOR
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2210B	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-EXECUTION
HOSC2220A	GOT	FILE GROUND MANAGEMENT TOOL – VIEWING
HOSC2220B	GOT	FILE GROUND MANAGEMENT TOOL – BUILDING
HOSC2230	GOT	OPERATIONS CONTROL MANAGEMENT SYSTEM (OCMS) REFERENCE FILE EDITOR
HOSC2240	GOT	COMMAND PLAN MANAGEMENT TOOL
HOSC3010	GOT	USING THE COMMAND SYSTEM MANAGEMENT APPLICATION
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC05	GOT	OSTP OPERATIONS MANUAL
OC06	GOT	PEP/PLMDM OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC09B	PST	COMMAND LINK MANAGEMENT-DETAILED
OC10	GOT	TIMELINER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OC16	GOT	AUTOMATED PROCEDURE DEVELOPMENT
OC24	PST	CPO FUNCTIONS AND INTERFACES – INCREMENT OPERATIONS
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS

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CPO CURRICULUM (Continued)

COURSE #	TYPE	TITLE
OIO6	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
STADOC1	GOT	ISS FAMILIARIZATION
STADOC4	GOT	ISS COMMAND & DATA HANDLING TRAINING MANUAL
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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CTC CURRICULUM

COURSE #	TYPE	TITLE
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL-VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
STADOC1	GOT	ISS FAMILIARIZATION
TRA01	PST	PAYLOAD TRAINING OVERVIEW
TRA02	PST	PAYLOAD TRAINING PROCESSES
TRA04	PST	TRAINING FUNCTIONS - CREW TRNG COORDINATOR
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING
TRA11	PST	JSC TRAINING FACILITIES OPERATIONS

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DMC CURRICULUM

COURSE #	TYPE	TITLE
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT01	PST	DATA MANAGEMENT FUNCTIONS AND INTERFACES
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT04A	PST	M-COMMUNICATIONS OUTAGE RECORDER (MEDIUM RATE COR)
DAT04B	PST	H-COMMUNICATIONS OUTAGE RECORDER (HIGH RATE COR)
DAT05	PST	PAYLOAD ETHERNET HUB/GATEWAY (PEHG)
DAT06	PST	AUTOMATED PAYLOAD SWITCH (APS)
DAT07	PST	HIGH RATE FRAME MULTIPLEXER (HRFM)
DAT08	PST	VIDEO SWITCHING UNIT (VSU)
DAT09	PST	VIDEO BASEBAND SIGNAL PROCESSOR (VBSP)
DAT10	PST	VTR/SCU/CAMERAS AND CAMCORDERS
DAT11	PST	TECHNOLOGY - CONCEPTS OF SIGNAL PROCESSING
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT12B	GOT	INTEGRATED VIDEO SYSTEM PROCESSES
DAT13	GOT	COMMANDING: C & T / C & DH
DAT14	PST	NETWORK ORIENTATION
DAT15	PST	PDSS ORIENTATION
DAT18	GOT	PDRF
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
DAT19B	PST	DATA FLOW SCHEDULING-DETAILED
DAT20A	GOT	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT20B	PST	ANTENNA MANAGEMENT DISPLAY-DETAILED
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
DAT25	GOT	OPS PRODUCT VERIFICATION OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2080	GOT	USING THE COMPUTATION GENERATION & OPERATION APPLICATIONS
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2100	GOT	USING THE NRT DATA REQUEST APPLICATION
HOSC2110	GOT	USING APPLIX
HOSC2120	GOT	USING THE END-USER COMMAND APPLICATIONS
HOSC2130	GOT	USING FRAMEMAKER
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2180	GOT	USING THE GROUND SUPPORT EQUIPMENT PACKETS APPLICATIONS
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2220A	GOT	FILE GROUND MANAGEMENT TOOL - VIEWING
HOSC2240	GOT	COMMAND PLAN MANAGEMENT TOOL
INC-X-DA01	PLST	INC-X DATA SYSTEMS OPERATIONS
INC-X-DA02	PLST	INC-X VIDEO OPERATIONS
INC-x-DA03	PLST	INC-X-GROUND DATA SERVICES

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DMC CURRICULUM (Continued)

COURSE #	TYPE	TITLE
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC06	GOT	PEP/PLMDM OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC09B	PST	COMMAND LINK MANAGEMENT-DETAILED
OC10	GOT	TIMELINER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OC16	GOT	AUTOMATED PROCEDURE DEVELOPMENT
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
STADOC1	GOT	ISS FAMILIARIZATION
STADOC4	GOT	ISS COMMAND & DATA HANDLING TRAINING MANUAL
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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ETOV PLANNER CURRICULUM

COURSE #	TYPE	TITLE
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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GTI CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND AND DATA HANDLING
DAT03	GOT	COMMUNICATIONS AND TRACKING
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GRND MGT TOOL - VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GRND MANAGEMENT TOOL - VIEWING
INC X OI05	PLST	INC X SAFETY OVERVIEW - STATIONWIDE
INC X TRA20	PLST	INC X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC.)
OI09	GOT	LOGISTICS/STOWAGE OPERATIONS MANUAL
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
STADOC1	GOT	ISS FAMILIARIZATION
TRA01	PST	PAYLOAD TRAINING OVERVIEW
TRA02	PST	PAYLOAD TRAINING PROCESSES
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA07	PST	TRAINING FUNCTIONS - SIMULATION TEAM
TRA08	PST	SIMULATION EXECUTION
TRA09	GOT	MULTI-CULTURAL TRAINING
TRA10	GOT	BASIC INSTRUCTOR COURSE
TRA11	PST	JSC TRAINING FACILITIES OPERATIONS
TRA12	PST	TRAINING FUNCTIONS - PL GSP TRAINING COORD
TRA15	PST	TRAINING FUNCTIONS - GROUND TRAINING INTEGRATOR
TRA16	PST	PAYLOAD DATA SET OVERVIEW
TRA18	PST	LAB SUPPORT EQUIPMENT (LSE) - OVERVIEW

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IPE CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) – PART 2
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC14	GOT	APM SYSTEMS OPERATIONS MANUAL
OC15	GOT	JEM SYSTEMS OPERATIONS MANUAL
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA02C	GOT	REALTIME OPERATIONS FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA09	PST	PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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LIS Rep Curriculum

IPM Curriculum

FPM Curriculum

COURSE #	TYPE	TITLE
CI04	GOT	PODF PROCEDURES AND DISPLAYS OVERVIEW
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2080	GOT	USING THE COMPUTATION GENERATION & OPERATION APPLICATIONS
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2240	GOT	COMMAND PLAN MANAGEMENT TOOL
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
STADOC1	GOT	ISS FAMILIARIZATION
STADOC2	GOT	ISS GUIDANCE, NAVIGATION, AND CONTROL TRAINING MANUAL
STADOC3	GOT	ISS THERMAL CONTROL SYSTEM TRAINING MANUAL
STADOC4	GOT	ISS COMMAND & DATA HANDLING TRAINING MANUAL
STADOC5	GOT	ISS STRUCTURES & MECHANISMS TRAINING MANUAL
STADOC6	GOT	ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
STADOC7	GOT	ISS ENVIRONMENTAL CONTROL & LIFE SUPPORT SYSTEM TRAINING MANUAL
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION

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LPP CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA09	PST	PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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OC CURRICULUM

COURSE #	TYPE	TITLE
CI01A	PST	PAYCOM FUNCTIONS
CI02	GOT	AIR-TO-GROUND MANAGEMENT OPERATIONS MANUAL
CI03	GOT	AIR-TO-GROUND / SPACE TO GROUND PROTOCOL
CI04	GOT	PODF PROCEDURES AND DISPLAYS OVERVIEW
CI07	GOT	MANUAL PROCEDURE VIEWER – OVERVIEW
CI08	GOT	MANUAL PROCEDURE VIEWER - DETAILED
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT10	GOT	VTR/SCU/CAMERAS AND CAMCORDERS
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2100	GOT	USING THE NRT DATA REQUEST APPLICATION
HOSC2110	GOT	USING APPLIX
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
HOSC2170	GOT	USING THE PIXMAP EDITOR
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2220A	GOT	FILE GROUND MANAGEMENT TOOL – VIEWING
HOSC2240	GOT	COMMAND PLAN MANAGEMENT TOOL
INC-X-DAT02	PLST	INC-X VIDEO OPERATIONS
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC04	GOT	PLSS OPERATIONS MANUAL
OC05	GOT	OSTP OPERATIONS MANUAL
OC06	GOT	PEP/PLMDM OPERATIONS MANUAL
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC08	GOT	LSE OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC10	GOT	TIMELINER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OC14	GOT	APM SYSTEMS OPERATIONS MANUAL
OC15	GOT	JEM SYSTEMS OPERATIONS MANUAL
OC17	GOT	ETOV OPERATIONS MANUAL
OC18	GOT	EXPRESS PALLET OPERATIONS MANUAL

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OC CURRICULUM (Continued)

COURSE #	TYPE	TITLE
OC23	PST	OC FUNCTIONS AND INTERFACES – INCREMENT OPERATIONS
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
OI09	GOT	LOGISTICS / STOWAGE OPERATIONS MANUAL
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PARC CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PAYCOM CURRICULUM

COURSE #	TYPE	TITLE
CI01	PST	PAYCOM FUNCTIONS AND INTERFACES
CI02	GOT	AIR-TO-GROUND MANAGEMENT OPERATIONS MANUAL
CI03		AIR-TO-GROUND/SPACE-TO-GROUND PROTOCOL
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT10	PST	VTR/SCU/CAMERAS AND CAMCORDERS
DAT25	GOT	OPS PRODUCT VERIFICATION OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
INC-X-D02	PLST	INC-X VIDEO OPERATIONS
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC08	GOT	LSE OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
OI09	GOT	LOGISTICS/STOWAGE OPERATIONS MANUAL
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PAYLOAD GROUND SUPPORT PERSONNEL TRAINING COORDINATOR (PGSPT COORD)

COURSE #	TYPE	TITLE
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
STADOC1	GOT	ISS FAMILIARIZATION
TRA01	PST	PAYLOAD TRAINING OVERVIEW
TRA02	PST	PAYLOAD TRAINING PROCESSES
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING
TRA10	GOT	BASIC INSTRUCTOR COURSE
TRA12	PST	TRAINING FUNCTIONS - PL GSP TRAINING COORD

PHANTOM CURRICULUM

COURSE #	TYPE	TITLE
CI05	GOT	PODF PROCEDURE & DISPLAY DEVELOPMENT
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT01	PST	DATA MANAGEMENT FUNCTIONS AND INTERFACES
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT07	PST	HIGH RATE FRAME MULTIPLEXER (HRFM)
DAT08	PST	VIDEO SWITCHING UNIT (VSU)
DAT09	PST	VIDEO BASEBAND SIGNAL PROCESSOR (VBSP)
DAT10	PST	VTR/SCU/CAMERAS AND CAMCORDERS
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT12B	GOT	INTEGRATED VIDEO SYSTEM PROCESSES
DAT13	GOT	COMMANDING: C & T / C & DH
DAT14	PST	NETWORK ORIENTATION
DAT15	PST	PDSS ORIENTATION
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
DAT20A	GOT	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT20B	PST	ANTENNA MANAGEMENT DISPLAY-DETAILED
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
DAT25	GOT	OPS PRODUCT VERIFICATION OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2120	GOT	USING THE END-USER COMMAND APPLICATIONS
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
INC-X-DA01	PLST	INC-X DATA SYSTEMS OPERATIONS
INC-X-DA02	PLST	INC-X VIDEO OPERATIONS
INC-X-DA03	PLST	INC-X-GROUND DATA SERVICES
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW

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PHANTOM CURRICULUM (Continued)

COURSE #	TYPE	TITLE
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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POD CURRICULUM

COURSE#	TYPE	TITLE
CI04	GOT	PODF PROCEDURES AND DISPLAYS OVERVIEW
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
DAT25	GOT	OPS PRODUCT VERIFICATION OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL - VIEWING
INC-X_-I05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC_X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI05A	PST	POD FUNCTIONS AND INTERFACES - INCREMENT PREP
OI05B	PST	POD FUNCTIONS AND INTERFACES - INCREMENT OPERATIONS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
STADOC1	GOT	ISS FAMILIARIZATION
STADOC2	GOT	ISS GUIDANCE, NAVIGATION, AND CONTROL TRAINING MANUAL
STADOC3	GOT	ISS THERMAL CONTROL SYSTEM TRAINING MANUAL
STADOC4	GOT	ISS COMMAND & DATA HANDLING TRAINING MANUAL
STADOC5	GOT	ISS STRUCTURES & MECHANISMS TRAINING MANUAL
STADOC6	GOT	ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
STADOC7	GOT	ISS ENVIRONMENTAL CONTROL/LIFE SUPPORT SYSTEM TRAINING MANUAL
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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POIC SAFETY CURRICULUM

COURSE #	TYPE	TITLE
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT18	GOT	PDRF
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2080	GOT	USING THE COMPUTATION GENERATION & OPERATION APPLICATIONS
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC04	GOT	PLSS OPERATIONS MANUAL
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC08	GOT	LSE OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC14	GOT	APM SYSTEMS OPERATIONS MANUAL
OC15	GOT	JEM SYSTEMS OPERATIONS MANUAL
OC17	GOT	ETOV OPERATIONS MANUAL
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
OI07A	PST	POIC SAFETY FUNCTIONS AND INTERFACES - INCREMENT PREP
OI07B	PST	POIC SAFETY FUNCTIONS AND INTERFACES - INCREMENT OPERATIONS
OI09	GOT	LOGISTICS/STOWAGE OPERATIONS MANUAL
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
STADOC1	GOT	ISS FAMILIARIZATION
STADOC2	GOT	ISS GUIDANCE, NAVIGATION, AND CONTROL TRAINING MANUAL
STADOC3	GOT	ISS THERMAL CONTROL SYSTEM TRAINING MANUAL
STADOC4	GOT	ISS COMMAND & DATA HANDLING TRAINING MANUAL
STADOC5	GOT	ISS STRUCTURES & MECHANISMS TRAINING MANUAL
STADOC6	GOT	ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
STADOC7	GOT	ISS ENVIRONMENTAL CONTROL/LIFE SUPPORT SYSTEM TRAINING MANUAL
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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POIC STOWAGE CURRICULUM

COURSE #	TYPE	TITLE
CI04	GOT	PODF PROCEDURES AND DISPLAYS OVERVIEW
CI07		MANUAL PROCEDURE VIEWER OVERVIEW
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
OC08	GOT	LSE OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
OI08A	PST	STOWAGE FUNCTIONS AND INTERFACES - INCREMENT PREP
OI08B	PST	STOWAGE FUNCTIONS AND INTERFACES - INCREMENT OPERATIONS
OI09	GOT	LOGISTICS/STOWAGE OPERATIONS MANUAL
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION

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PP CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA09	PST	PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PPM CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA02C	GOT	REALTIME OPERATIONS FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA09	PST	PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PPSE CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) – PART 2
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02A	GOT	OPERATIONS PREPARATION FUNCTIONS & INTERFACES
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA02C	GOT	REALTIME OPERATIONS FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA09	PST	PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)
PLA10	PST	PPS/PLANNER
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PRO/PSE CURRICULUM

COURSE #	TYPE	TITLE
CI04	GOT	PODF PROCEDURES AND DISPLAYS OVERVIEW
CI05	GOT	PODF PROCEDURE AND DISPLAY DEVELOPMENT
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2050	GOT	USING THE DATABASES
HOSC2060	GOT	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	GOT	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2090	GOT	USING THE SCRIPTING APPLICATIONS
HOSC2100	GOT	USING THE NRT DATA REQUEST APPLICATION
HOSC2110	GOT	USING APPLIX
HOSC2120	GOT	USING THE END USER COMMAND APPLICATIONS
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
HOSC2170	GOT	USING THE PIXMAP EDITOR
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2220A	GOT	FILE GROUND MANAGEMENT TOOL – VIEWING
HOSC2240	GOT	COMMAND PLAN MANAGEMENT TOOL
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC04	GOT	PLSS OPERATIONS MANUAL
OC05	GOT	OSTP OPERATIONS MANUAL
OC06	GOT	PEP/PLMDM OPERATIONS MANUAL
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC08	GOT	LSE OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC10	GOT	TIMELINER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OC14	GOT	APM SYSTEMS OPERATIONS MANUAL
OC15	GOT	JEM SYSTEMS OPERATIONS MANUAL
OC16	GOT	AUTOMATED PROCEDURE DEVELOPMENT
OC17	GOT	ETOV OPERATIONS MANUAL
OC18	GOT	EXPRESS PALLET OPERATIONS MANUAL
OC22	PST	PRO AND PSE FUNCTIONS AND INTERFACES – INCREMENT OPERATIONS
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS

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PRO/PSE CURRICULUM (Continued)

OIO6	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
OIO9	GOT	LOGISTICS / STOWAGE OPERATIONS MANUAL
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA12	GOT	PPS / INTERIM USER REQUIREMENTS COLLECTION (iURC)
STADOC1	GOT	ISS FAMILIARIZATION
STADOC3	GOT	ISS THERMAL CONTROL SYSTEM TRAINING MANUAL
STADOC4	GOT	ISS COMMAND AND DATA HANDLING TRAINING MANUAL
STADOC6	GOT	ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
STADOC7	GOT	ISS ENVIRONMENTAL CONTROL / LIFE SUPPORT SYSTEM TRAINING MANUAL
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

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PTI CURRICULUM

COURSE #	TYPE	TITLE
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
STADOC1	GOT	ISS FAMILIARIZATION
TRA01	PST	PAYLOAD TRAINING OVERVIEW
TRA02	PST	PAYLOAD TRAINING PROCESSES
TRA03	PST	TRAINING FUNCTIONS - PAYLOAD TRAINING INTEGRATOR (PTI)
TRA09	GOT	MULTI-CULTURAL TRAINING
TRA10	PST	BASIC INSTRUCTOR COURSE
TRA11	PST	JSC TRAINING FACILITIES OPERATIONS
TRA16	PST	PAYLOAD DATA SET OVERVIEW
TRA17	GOT	MINI PRESSURIZED LAB MODULE (MPLM) OVERVIEW
TRA18	PST	LAB SUPPORT EQUIPMENT (LSE) - OVERVIEW

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SE CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT11	PST	TECHNOLOGY - CONCEPTS OF SIGNAL PROCESSING
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 2
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2220A	GOT	FILE GROUND MANAGEMENT TOOL - VIEWING
HOSC3050	GOT	USING THE DATA PACKET GENERATOR APPLICATION
INC-X-DA01	PLST	INC-X DATA SYSTEMS OPERATIONS
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC05	GOT	OSTP OPERATIONS MANUAL
OC06	GOT	PEP/PLMDM OPERATIONS MANUAL
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC08	GOT	LSE OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC10	GOT	TIMELINER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
STADOC1	GOT	ISS FAMILIARIZATION
STADOC6	GOT	ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
TRA01	PST	PAYLOAD TRAINING OVERVIEW
TRA02	PST	PAYLOAD TRAINING PROCESSES
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA06	PST	TRAINING FUNCTIONS - SIMULATION ENGINEER
TRA08	PST	SIMULATION EXECUTION
TRA09	GOT	MULTI-CULTURAL TRAINING
TRA10	GOT	BASIC INSTRUCTOR COURSE
TRA11	PST	JSC TRAINING FACILITIES OPERATIONS

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SIM TEAM (SIM DIRECTOR, SIM SUPERVISOR, SIM COODINATOR) CURRICULUM

COURSE #	TYPE	TITLE
DAT01	PST	DATA MANAGEMENT FUNCTIONS AND INTERFACES
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT04A	PST	M-COMMUNICATIONS OUTAGE RECORDER (MEDIUM RATE COR)
DAT05	PST	PAYLOAD ETHERNET HUB/GATEWAY (PEHG)
DAT06	PST	AUTOMATED PAYLOAD SWITCH (APS)
DAT07	PST	HIGH RATE FRAME MULTIPLEXER (HRFM)
DAT08	PST	VIDEO SWITCHING UNIT (VSU)
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT18	GOT	PDRF
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
DAT25	GOT	OPS PRODUCT VERIFICATION OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2200A	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2210A	GOT	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL-VIEWING
HOSC2220A	GOT	FILE GROUND MANAGEMENT TOOL - VIEWING
INC-X-DA01	PLST	INC-X DATA SYSTEMS OPERATIONS
INC-X-DA02	PLST	INC-X VIDEO OPERATIONS
INC-X-D03	PLST	INC-X-GROUND DATA SERVICES
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC01	GOT	CREW INTERFACE OPERATIONS MANUAL
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC03	GOT	END-TO-END COMMANDING OPS MANUAL
OC04	GOT	PLSS OPERATIONS MANUAL
OC05	GOT	OSTP OPERATIONS MANUAL
OC06	GOT	PEP/PLMDM OPERATIONS MANUAL
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC08	GOT	LSE OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC09B	PST	COMMAND LINK MANAGEMENT-DETAILED
OC10	GOT	TIMELINER OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OC13	GOT	PRODUCT OVERVIEW/COMMAND PLAN
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
OI09	GOT	LOGISTICS/STOWAGE OPERATIONS MANUAL
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS

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SIM TEAM (SIM DIRECTOR, SIM SUPERVISOR, SIM COODINATOR) CURRICULUM (Continued)

STADOC1	GOT	ISS FAMILIARIZATION
STADOC6	GOT	ISS ELECTRICAL POWER SYSTEM TRAINING MANUAL
TRA01	PST	PAYLOAD TRAINING OVERVIEW
TRA02	PST	PAYLOAD TRAINING PROCESSES
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA07	PST	TRAINING FUNCTIONS - SIMULATION TEAM
TRA08	PST	SIMULATION EXECUTION
TRA09	GOT	MULTI-CULTURAL TRAINING

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SOC CURRICULUM **TBD**

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TMM CURRICULUM

COURSE #	TYPE	TITLE
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
DAT20A	GOT	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
HOSC1040	GOT	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
HOSC2160	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) – PART 2
HOSC2200A	GOT	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL- VIEWING
HOSC2200B	GOT	ONBOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL - EDITING
INC-X-OI05	PLST	INC-X SAFETY OVERVIEW - STATIONWIDE
INC-X-TRA20	PLST	INC-X PAYLOAD EXPERIMENT FACILITIES OVERVIEW
OC02	GOT	FILE TRANSFER OPERATIONS MANUAL
OC05	GOT	OSTP OPERATIONS MANUAL
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA02C	GOT	REALTIME OPERATIONS FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA09	PST	PPS/FLIGHT DYNAMICS PLANNING AND ANALYSIS (FDPA)
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
PLA13	PST	PPS/CPS-EDR INTERFACE TOOL (CEIT)
PLA14	PST	PPS/EXTERNAL DATA REPOSITORY (EDR)
PLA15	PST	ETOV FUNCTIONS AND INTERFACES
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

WISARD CURRICULUM

COURSE #	TYPE	TITLE
DAT01	PST	DATA MANAGEMENT FUNCTIONS AND INTERFACES
DAT02	GOT	COMMAND & DATA HANDLING - GENERAL
DAT03	GOT	COMMUNICATIONS AND TRACKING - GENERAL
DAT04A	PST	M-COMMUNICATIONS OUTAGE RECORDER (MEDIUM RATE COR)
DAT04B	PST	H-COMMUNICATIONS OUTAGE RECORDER (HIGH RATE COR)
DAT05	PST	PAYLOAD ETHERNET HUB/GATEWAY (PEHG)
DAT06	PST	AUTOMATED PAYLOAD SWITCH (APS)
DAT07	PST	HIGH RATE FRAME MULTIPLEXER (HRFM)
DAT08	PST	VIDEO SWITCHING UNIT (VSU)
DAT10	PST	VTR/SCU/CAMERAS AND CAMCORDERS
DAT12A	GOT	INTEGRATED VIDEO SYSTEM
DAT19A	GOT	DATA FLOW SCHEDULING-OVERVIEW
DAT19B	PST	DATA FLOW SCHEDULING-DETAILED
DAT20A	GOT	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT20B	PST	ANTENNA MANAGEMENT DISPLAY-DETAILED
DAT22	GOT	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC2010	GOT	MARSHALL/HOSC OVERVIEW
HOSC2020	GOT	DATA SYSTEMS OVERVIEW
HOSC2150	GOT	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS)- PART 1
INC-X-DA01	PLST	INC-X DATA SYSTEMS OPERATIONS
INC-X-DA02	PLST	INC-X VIDEO OPERATIONS
INC-X-DA03	PLST	INC-X-GROUND DATA SERVICES
OC07	GOT	EXPRESS RACK OPERATIONS MANUAL
OC09A	GOT	COMMAND LINK MANAGEMENT - OVERVIEW
OC12	GOT	STATIONWIDE PLSS OVERVIEW
OI01	GOT	DEFINITION OF TERMS, ACRONYMS
OI02	GOT	POIF DOCUMENTATION
OI03	GOT	POIF TEAM DEFINITION
OI04	GOT	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
OI06	GOT	GROUND SYSTEMS OVERVIEW (PPS, PDL, IOP, ETC)
PLA01	GOT	INTRODUCTION TO MISSION PLANNING
PLA02B	GOT	SHORT TERM PLANNING FUNCTIONS & INTERFACES
PLA02C	GOT	REALTIME OPERATIONS FUNCTIONS & INTERFACES
PLA03	GOT	PPS OVERVIEW
PLA04	GOT	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA05	GOT	INTRO TO SPACE STATION ORBITAL MECHANICS
PLA06	GOT	PPS / PRODUCT GENERATION (PG) OVERVIEW
PLA08	GOT	PPS / USER REQUIREMENTS COLLECTION (URC)
PLA11	GOT	PPS/CONSOLIDATED PLANNING SYSTEM (CPS)
PLA12	GOT	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
STADOC1	GOT	ISS FAMILIARIZATION
TRA05	GOT	VOICE PROTOCOL FAMILIARIZATION
TRA09	GOT	MULTI-CULTURAL TRAINING

C.2, PAYLOAD DEVELOPER TRAINING CURRICULUMS

The following lists outline the curriculums that each PD position must complete for certification purposes.

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AIR-TO-GROUND/SPACE-TO-GROUND CURRICULUM

CI03	SPACE TO GROUND - AIR TO GROUND PROTOCOL
CI04	PODF PROCEDURES AND DISPLAYS OVERVIEW
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2150	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 1
HOSC2160	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 2
HOSC2200A	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL – VIEWING
HOSC2210A	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL - VIEWING
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL

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COMMANDING CURRICULUM

DAT02	COMMAND & DATA HANDLING - GENERAL
DAT03	COMMUNICATIONS AND TRACKING - GENERAL
DAT20A	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT22	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2050	USING THE DATABASES
HOSC2090	USING THE SCRIPTING APPLICATIONS
HOSC2120	USING THE END-USER COMMAND APPLICATIONS
HOSC2220A	FILE GROUND MANAGEMENT TOOL - VIEWING
OC03	END-TO-END COMMANDING OPS MANUAL
OC09A	COMMAND LINK MANAGEMENT-OVERVIEW
OC13	PRODUCT OVERVIEW/COMMAND PLAN
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL FAMILIARIZATION
TRA14	TReK OVERVIEW
TRA15	TReK DEMONSTRATION

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DATA CURRICULUM

DAT02	COMMAND & DATA HANDLING - GENERAL
DAT03	COMMUNICATIONS AND TRACKING - GENERAL
DAT12A	INTEGRATED VIDEO SYSTEM
DAT20A	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT22	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2050	USING THE DATABASES
HOSC2060	USING THE EXCEPTION MONITOR APPLICATION
HOSC2070	USING HOSC DISPLAY GENERATION & OPERATION APPLICATION
HOSC2080	USING THE COMPUTATION GENERATION & OPERATION APPLICATIONS
HOSC2090	USING THE SCRIPTING APPLICATIONS
HOSC2100	USING THE NRT DATA REQUEST APPLICATION
HOSC2110	USING APPLIX
HOSC2190	USING THE STRIP CHART RECORDER APPLICATIONS
HOSC2220A	FILE GROUND MANAGEMENT TOOL - VIEWING
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL FAMILIARIZATION
TRA14	TReK OVERVIEW
TRA15	TReK DEMONSTRATION

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EGSE/FACILITY CURRICULUM

HOSC2090	USING THE SCRIPTING APPLICATIONS
HOSC2180	USING THE GROUND SUPPORT EQUIPMENT PACKETS APPLICATION
TRA14	TReK OVERVIEW
TRA15	TReK DEMONSTRATION

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HARDWARE/SOFTWARE SUPPORT CURRICULUM

CI04	PODF PROCEDURES AND DISPLAYS OVERVIEW
DAT02	COMMAND & DATA HANDLING - GENERAL
DAT03	COMMUNICATIONS AND TRACKING - GENERAL
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL FAMILIARIZATION

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MANAGEMENT CURRICULUM

DAT02	COMMAND & DATA HANDLING - GENERAL
DAT03	COMMUNICATIONS AND TRACKING - GENERAL
DAT12A	INTEGRATED VIDEO SYSTEM
DAT22	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2150	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 1
HOSC2160	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 2
HOSC2200A	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL – VIEWING
HOSC2210A	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL - VIEWING
OC13	PRODUCT OVERVIEW/COMMAND PLAN
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
OI04	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
PLA01	INTRODUCTION TO MISSION PLANNING
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL

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MANAGEMENT SUPPORT CURRICULUM

DAT02	COMMAND & DATA HANDLING - GENERAL
DAT03	COMMUNICATIONS AND TRACKING - GENERAL
DAT12A	INTEGRATED VIDEO SYSTEM
DAT20A	ANTENNA MANAGEMENT DISPLAY-OVERVIEW
DAT22	PRODUCT OVERVIEW/DATA FLOW PLAN
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2200A	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL – VIEWING
OC09A	COMMAND LINK MANAGEMENT-OVERVIEW
OC13	PRODUCT OVERVIEW/COMMAND PLAN
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
OI04	STATIONWIDE & US PARTNER PAYLOAD OPERATIONS CONCEPTS
PLA01	INTRODUCTION TO MISSION PLANNING
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL

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PLANNING CURRICULUM

HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2150	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 1
HOSC2160	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 2
HOSC2200A	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL – VIEWING
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA01	INTRODUCTION TO MISSION PLANNING
PLA03	PPS OVERVIEW
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
PLA08	PPS/USER REQUIREMENTS COLLECTION (URC)
PLA12	PPS/INTERIM USER REQUIREMENTS COLLECTION (iURC)
TRA05	VOICE PROTOCOL FAMILIARIZATION

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PROCEDURES CURRICULUM

CI04	PODF PROCEDURES AND DISPLAYS OVERVIEW
CI05	PODF PROCEDURE AND DISPLAY DEVELOPMENT OVERVIEW
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2160	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 2
HOSC2200A	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL – VIEWING
HOSC2210A	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL - VIEWING
HOSC2220A	FILE GROUND MANAGEMENT TOOL - VIEWING
OC16	AUTOMATED PROCEDURE DEVELOPMENT
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL FAMILIARIZATION

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PIMS CURRICULUM

CI04	PODF PROCEDURES AND DISPLAYS OVERVIEW
HOSC1040	WORKSTATION OVERVIEW AND GENERAL PURPOSE UTILITIES
HOSC2020	DATA SYSTEMS OVERVIEW
HOSC2150	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 1
HOSC2160	USING THE PAYLOAD INFORMATION MANAGEMENT SYSTEM (PIMS) - PART 2
HOSC2200A	ON-BOARD SHORT TERM PLAN (OSTP) GROUND MANAGEMENT TOOL – VIEWING
HOSC2210A	AUTOMATED PROCEDURES GROUND MANAGEMENT TOOL - VIEWING
OI01	DEFINITION OF TERMS, ACRONYMS
OI02	POIF DOCUMENTATION
PLA04	PRODUCT OVERVIEW/MISSION PLANNING PRODUCTS
PLA06	PPS/PRODUCT GENERATION (PG) OVERVIEW
TRA05	VOICE PROTOCOL FAMILIARIZATION

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APPENDIX D
TRAINING FLOWS

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APPENDIX E

ABBREVIATIONS AND ACRONYMS

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E, ABBREVIATIONS AND ACRONYMS

ACS	Atmosphere Control and Supply
A/G	Air-to-Ground
AIO	APM Interface Officer
AIPE	APM Interface Planning Engineer
APCU	Assembly Power Converter Unit
APID	Application Process Identifier
APM	Attached Pressurized Module
APS	Automated Payload Switching
AR	Atmosphere Revitalization
ARC	Ames Research Center
ARIS	Active Rack Isolation System
ARIU	Audio Radio Interface Unit
BANDIT	Bandwidth Integration Timeliner
C&C MDM	Command and Control Multiplexer/Demultiplexer
C&DH	Command and Data Handling
C&T	Communications and Tracking
CB	Control Board
CBT	Computer-Based Trainer
CEIT	CPS-EDR Interface Tool
Cert	Certification
CMD	Command
COF	Columbus Orbital Facility
CoFR	Certification of Flight Readiness
COR	Communications Outage Recorder
CPO	Command Payload MDM Officer
CPS	Consolidated Planning System
CSA	Canadian Space Agency
CTC	Crew Training Coordinator
DAC	Decision Action Diagram
DAIU	Docked Audio Interface Unit
DB	Database
DDCU	DC/DC Converter Unit
DFP	Data Flow Plan
DM	Data Management
DMC	Data Management Coordinator
DM Support	Data Management Support
DOC	Data Operations Controller

DOC	Document
DREP	Data Replanner
DSM	Data Systems Manager
DSRC	Data System Routing and Configuration
DTM	Discipline Training Manager
ECLSS	Environmental Control and Life Support System
ECO	End-to-End Configuration Officer
ECO Support	End to End Configuration Officer Support
ECR	Engineering Change Request
EDR	External Data Repository
EETCS	Early External Thermal Control System
EGSE	Experiment Ground Support Equipment
EHS	Enhanced HOSC System
EPA	Early Payload Accommodation
EPS	Electrical Power System
ESA	European Space Agency
ETE	End-to-End
ETOV	Earth-To-Orbit Vehicle
EVA	Extra Vehicular Activity
EVID	EHS Video Distribution
EVOD	EHS Voice Distribution
EXPRESS	EXpedite(ing) the PROcess(ing) of Experiments to Space Station
FDPA	Flight Dynamics and Planning Analysis
FDS	Fire Detection and Suppression System
FOC	Full Operations Capability
GBF	Gravitational Biology Facility
GMT	Greenwich Mean Time
GN&C	Guidance, Navigation and Control
GOT	Generic Operations Training
GSP	Ground Support Personnel
GTI	Ground Training Integrator
H&S	Health and Safety
H/W	Hardware
HOSC	Huntsville Operations Support Center
HPL	HSG Payload Lead
HPO	HSG Payload Operations
HRFM	High Rate Frame Multiplexer

I-	Increment minus
ID	Identification
I/F	Interface
INC	Increment
IOP	Increment Operations Plan
IP	International Partner
IPE	Interface Planning Engineer
ISPR	International Standard Payload Rack
ISS	International Space Station
ISSPO	International Space Station Program Office
IST	Integrated Support Team
ITCS	Internal Thermal Control System
iURC	Interim User Requirements Collection
JEM	Japanese Experiment Module
JIO	JEM Interface Officer
JIPE	JEM Interface Planning Engineer
JOIP	Joint Operations Interface Procedures
JOP	Joint Operations Procedures
JSC	Johnson Space Center
LeRC	Lewis Research Center
LIS	Lead Increment Scientist
LNS	Lab Nitrogen System
LSE	Lab Support Equipment
LVLH	Local Vertical, Local Horizontal
MCC - H	Mission Control Center - Houston
MCC - M	Mission Control Center - Moscow
MDM	Multiplexer/Demultiplexer
MP	Mission Planning
MOL	Mission Operations Laboratory
MPLM	Multi-Purpose Logistics Module
MPO	MDM/PEP Officer
MPV	Manual Procedure Viewer
MSFC	Marshall Space Flight Center
MSN	Mission
MTMP	Multilateral Training Management Plan
N/A	Not Applicable
NASA	National Aeronautics and Space Administration
NASDA	National Aeronautics/Space Development Agency of Japan

NIA	Nitrogen Interface Assembly
NPOCB	NASA POCB
NRT	Near Real Time
NTSC	National Television Standards Committee
OC	Operations Controller
OCMS	Operational Configuration Management System
OCR	Operations Change Request
ODE	Operational Data Element
OI	Operations Integration
OIU	Orbiter Interface Unit
OJT	On-the-Job Training
OOS	On-orbit Operations Summary
OPS FB	Operations Feedback
OPS LAN	Operations Local Area Network
OPS Mngmt	Operations Management
OPS PREP	Operations Preparation
OSTP	On-board Short Term Plan
PAO	Public Affairs Officer
PAYCOM	Payload Communications Manager
PCA	Pressure Control Assembly
PCC	Partner Control Center
PCO	Payload Communication Officer
PCS	Portable Computing System
PD	Payload Developer
PDL	Payload Data Library
PDRF	Payload Data Request Form
PDSS	Payload Data Service System
PEHG	Payload Ethernet Hub Gateway
PEP	Payload Executive Processor
PES	Payload Executive Software
PG	Product Generation
PGSPT Coord	Payload Ground Support Personnel Training
PHANTOM	Photographic and Television Operations Manager
PIE	Partner Integration Engineer
PIMS	Payload Information Management System
PL	Payload
PLMDM	Payload Multiplexer/Demultiplexer
PLSS	Payload Support Systems
PLST	Payload-Specific Training
POCB	Payload Operations Control Board

POD	Payload Operations Director
PODF	Payload Operations Data File
PODFCB	PODF Control Board
POH	Payload Operations Handbook
POI	Payload Operations and Integration
POIC	Payload Operations Integration Center
POIF	Payload Operations Integration Function
POIWG	Payload Operations Integration Working Group
POM	Payload Operations Manager
PPM	Payload Planning Manager
PPS	Payload Planning System
PPSE	Payload Planning Scheduling Engineer
PRO	Payload Rack Officer
PSE	Payload Support Equipment
PSE	Payload System Engineer
PST	Position-Specific Training
PTC	Payload Training Center
PTE	Payload Training Engineer
PTI	Payload Training Integrator
PTIM	Payload Training Integration Manager
PTIP	Payload Training Implementation Plan
RDS	Resource Distribution Summary
REM	Resource Envelope Manager
RFE	Reference File Editor
ROS	Russian Operating Segment
RPC	Remote Power Controller
RPCM	Remote Power Controller Mechanism
RPDA	Remote Power Distribution Assembly
RSA	Russian Space Agency
RT	Remote Terminal
S/W	Software
SC	Simulation Coordinator
SCM	System Configuration Manager
SCU	Synchronization Control Unit
SD	Simulation Director
SEC	Section
SHOE	Shuttle Operations Engineer
Sim	Simulation
Sim Coord/SC	Simulation Coordinator
Sim Dir/SD	Simulation Director

Sim Eng/SE	Simulation Engineer
Sim Sup/SS	Simulation Supervisor
SOC	Shuttle Operations Coordinator
SPIE	Stationwide Planning Integration Engineer
SPIP	Station Program Implementation Plan
SPPSE	Stationwide Payload Planning Software Engineer
SS	Simulation Supervisor
SSCC	Space Station Control Center
SSP	Space Station Program (only in document numbers)
SSTF	Space Station Training Facility
START	Start-up Training Analysis Review Team
STP	Short Term Plan
TBD	To Be Determined
TBE	Teledyne Brown Engineering
TBR	To Be Resolved
TBS	To Be Supplied
TCC	Time-Tag Command
TCO	Timeline Change Officer
TCS	Thermal Control System
TDD	Team Definition Document
TDRSS	Tracking and Data Relay Satellite System
TEM	Timeline Execution Manager
TEO	Timeline Execution Officer
THC	Temperature and Humidity Control
TIM	Technical Interchange Meeting
TIP	Training Implementation Plan
TMM	Timeline Maintenance Manager
TMO	Timeline Maintenance Officer
TReK	Telemetry Resources Kit
Trng	Training
TRR	Training Readiness Review
TSC	Telescience Support Center
TST	Training Strategy Team
UDE	User-generated Data Element
UDPE	POIC Data Planning Engineer
UIPE	US Interface Planning Engineer
UDO	Uplink Downlink Officer
UF	Utilization flight
UOF	User Operations Facility
URC	User Requirements Collection

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US	United States
USOS	United States Operating Segment
USPCC	United States Partner Control Center
VBSP	Video Bandwidth Signal Processor
VES	Vacuum Exhaust System
VOL	Volume
VRS	Vacuum Resource System
VSU	Video Switching Unit
VTR	Video Tape Recorder
VULCON	Video Uplink Controller
WISARD	Weekly Implementer of Systems and Resources for Data
WM	Waste Management
WRM	Water Recovery and Management
WWW	World Wide Web
ZOE	Zone of Exclusion

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